AMERICAN GAS ASSOCIATION MONTHLY

October 1927

Volume IX Number 10

Interconnection Solves an Economic Problem
By PETER F. PAFFEN

The Gasco Oven Proves Itself in Operation
By E. L. HALL

The Ninth Will Be the First—And Best

Industrial Gas Research Goes Ahead Apace
By C. W. BERGHORN

New Testing Laboratory Building Planned

Gas Industry Aids Aviation Development

Laboratory Develops New Method for Testing Efficiency of Warm Air Furnaces
By GEORGE B. SHAWN

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AMERICAN GAS ASSOCIATION MONTHLY

420 LEXINGTON AVENUE, NEW YORK, N. Y.

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We'll All Be There

Ninth Annual Convention
of the
American Gas Association

Chicago, Ill.
Stevens Hotel
October 10-14

SUBSCRIPTION RATE — *$3.00 PER YEAR*

For statements and opinions contained in papers and discussions appearing herein, the Association does not hold itself responsible.

Entered as Second Class Mail Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

Our Own Who's Who

XXIX
Ralph W. Gallagher

BORN at Salamanca, N. Y. Entered the employ of one of the Standard Oil Company's subsidiaries at Olean, N. Y. After being employed in the field and transportation departments of various other Standard subsidiaries, he was transferred to The East Ohio Gas Company, Akron, Ohio, in the year 1900. Later on, he was transferred to the Company's main office at Cleveland, Ohio, where he acted as general superintendent and in other capacities until elected to the presidency of the company, October 1, 1926.

Served as a director of the Natural Gas Association of America for several years and as president during the year 1926. Has served as chairman of the A. G. A. Laboratory Managing Committee since its inception, and is member of Executive Board of A. G. A.

AMERICAN GAS ASSOCIATION MONTHLY

Vol. IX OCTOBER, 1927 No. 10

The Ninth Will Be the First—And Best

Annual Convention at Chicago, October 10 to 14, Will Break All Records, According to Advance Indications

THE one big event of the year from the gas man's standpoint is the annual convention and exhibition of the American Gas Association. This year, from October 10 to 14, the gas industry will meet at the Stevens Hotel, in Chicago, to be part of a convention that will be marked with an exceptionally fine program of speakers, a fine exhibition of new equipment and appliances, and the usual high quality entertainment events.

The stage is set for this meeting, when all elements of the gas industry will be brought together in one place at one time and for the first time. The industry, united as a result of the amalgamation of the A. G. A. with the Natural Gas Association of America, will find this first convention of the entire industry, and the ninth of the A. G. A., to be a real milestone in the progress of gas service in North America.

An exceptionally fine program will be the feature of the meeting. The General Sessions will be addressed by speakers of national importance. At the sectional

Chicago's famous skyline with the Stevens, convention headquarters, in the foreground

Convention Headquarters

meetings there will also be an array of speakers of importance who will all have pertinent and timely messages.

There will be more than 30,000 sq.ft. of exhibitions. There will be displays of the latest and best in equipment, appliances, and other products of the manufacturers' brains.

Several changes in the tentative program have been announced.

ENTERTAINMENT

The entertainment features will be practically as announced in past issues of the MONTHLY. Arrangements have been made to provide golfing privileges for members and their guests at the Olympian Fields Country Club. This club is located on the Illinois Central Railroad, and is about 45 minutes from the Loop District. There are four fast 18-hole courses at the Olympia, and the club is one of the best in the Chicago district. Arrangements for golfing at the Westmoreland Country Club have also been made. This latter is also one of the finest and best courses in the Chicago District.

REGISTRATION

Every one attending the convention is requested to register, and *register early*. An appeal is made to all members to place themselves officially on record as being at the convention by registering at the booth provided in the Stevens just as soon as they register at the hotel where they are staying.

The registration of all members will facilitate the prompt receipt of mail, telegrams, and messages. It will be the only way in which members will be able to secure copies of the official convention program and their badges. The badges are to be the sole means of admission to all business sessions, the exhibition, and entertainment functions.

In addition, copies of all printed reports, etc., to be submitted at the General Sessions will be distributed only at the Registration Desk at the time of registering.

In order to be at the convention, to take part in the meetings, to attend the sessions, the exhibition, and the enter-

Olympian Fields Country Club—one of the clubs at members' disposal

A FEW OF THE CONVENTION HEADLINERS

JAMES A. EMERY has been general counsel of the National Association of Manufacturers since 1910. He assisted in the organization of the National Industrial Conference Board, the War Labor Board, and was advisor of the employer group of the first International Labor Conference in Washington in 1919. Mr. Emery has actively participated in the presentation of industrial questions in litigation and legislation. He has been an important factor in the transition of American industry from the system of employers' liability to workmen's compensation.

ROBERT R. UPDEGRAFF is a well-known writer of business articles, and author of "Captains in Conflict," a book depicting the struggle of American business in the 1927 tempo. He has been for some time prominently associated with national magazines, either as a contributing author or as a consulting editor, and has also been a leader in the advertising and merchandising worlds. He is now associate editor of the "Magazine of Business."

DR. LILLIAN GILBRETH has carried on the work of her husband, famous as an efficiency expert, since his death, and has also carried on the construction work in which he was engaged. Dr. Gilbreth is now a prominent figure in the efficiency world.

RICHARD H. AISHTON has been president of the American Railway Association since 1920. From 1916 to 1920 he was president of the Chicago and Northwestern Railroad and was director of Western Division railroads under the United States Government from 1918 to 1920.

PHILIP CABOT has long been associated with the public utility industry. As professor of public utility economics at the Harvard School of Business Administration, Cambridge, Mass., he has contributed much to the development of utility companies. He has addressed many gatherings of gas men in the past few years, and has always brought home an important economic message that has been poignant because timely.

HENRY R. HAYES is president of the Investment Bankers' Association of America. He is a vice-president of Stone & Webster and Blodget, Inc., and is also a vice-president of Stone & Webster. He has long been conspicuous in the work of the Investment Bankers' Association, serving for five years on the public service securities committee and two years on the circulars committee. From 1923 through 1926 he was a governor, the latter year becoming a vice-president.

CORNELIUS J. DOYLE is associate general counsel for the National Board of Fire Underwriters. A well-known figure in Illinois and Middle Western business circles, he has had a long and interesting career. He is a former secretary of state of the State of Illinois.

tainment features, it is necessary to register. The cooperation of all members is especially requested in this.

GENERAL SESSIONS

The tentative program of the General Sessions will be the same as announced in the September MONTHLY, with a few minor changes.

James A. Emery, general council, National Association of Manufacturers, Washington, D. C., will address the Wednesday morning session on "Essentials of Prosperity," as the contribution of the Publicity and Advertising Section.

The address on "Executive Interest in and Responsibility for Sales," will be given by W. Alton Jones, first vice-president of the Henry L. Doherty and Company, instead of P. S. Arkwright, as announced.

Robert R. Updegraff, author of "Captains in Conflict," and associate editor of the *Magazine of Business,* is scheduled to address the General Sessions on "The New American Tempo." This will be the contribution of the Manufacturers' Section.

ACCOUNTING SECTION

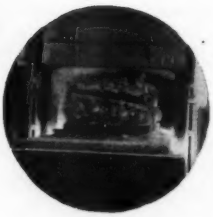
Samuel Insull, Jr., will address the Accounting Sessions on "The Accountant and his Big Job in the Gas Industry."

PUBLICITY AND ADVERTISING SECTION

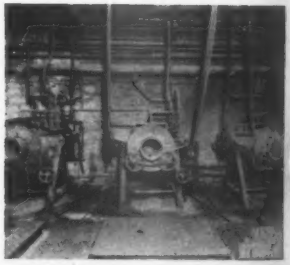
On Wednesday afternoon this section will hold a national symposium of public utility executives. The program has been announced as follows:

Typical Scenes in Plants to be Visited During Convention Week

Complete Details of the Industrial Gas Inspection Trips Were Published in the September Monthly



Trips to These and Many Other Chicago Factories Where Gas Is Used Will Prove an Interesting Feature of the Convention



All Arrangements Are Being Handled by D. W. Chapman, The Peoples Gas Light and Coke Company.

"The Public Interest in Transportation," R. H. Aishton, president, American Railway Association, Chicago, Ill.

"Space Grabbing in the Newspapers," Bernard J. Mullaney, vice-president, The Peoples Light and Coke Co., Chicago, Ill.

"The Financial Stability of the Utility Industry," Henry R. Hayes, president, Investment Bankers' Association of America.

"The True Functions of Government," Cornelius J. Doyle, associate general counsel, National Board of Fire Underwriters, Springfield, Ill.

This meeting will be open to every one affiliated with the public utility industry.

TECHNICAL SECTION

J. A. Perry of The United Gas Improvement Company, Philadelphia, Pa., is to present "Mixed Gases from the Standpoint of Plant Operation."

"Some European Developments," will be the subject of an address by G. M. Gill, consulting engineer, London, England.

SPECIAL TRAINS FROM EAST

At the time of going to press, knowledge was gained of two special A. G. A. convention trains from New York to Chicago. These trains will leave Sunday, Oct. 9, at 5:30 p.m. Eastern standard time, arriving at Chicago at 4:30 p.m. Monday. One will go via the Pennsylvania R. R., leaving from the Penna. Station, and the other via the New York Central, from Grand Central.

Full Pullman equipment, club cars, observation car, etc., will be used. The extra fare will be $4.80.

WOMEN'S MEETING

The meeting of the women of the industry will be held Thursday morning, October 13, at 10:00 a.m. in the North Ballroom of the Stevens. Miss Julianne Doane, dean of women of The Peoples Gas Light and Coke Company, will be chairman of the meeting.

Among the speakers on the program are: E. B. Luce, Consolidated Gas Electric Light and Power Company, Baltimore, Md.; Miss Julie Pailet, New Orleans Public Service Company, New Orleans, La.; Miss Marie Sellars, Postum Company, New York, N. Y.; Miss Grace Jo Mason, Federal Light and Traction Company, Tucson, Ariz.; Miss K. A. Booth, The Peoples Gas Light and Coke Company, Chicago, Ill.

Dr. Gilbreth and her family of 12 children. Dr. Gilbreth will address the General Sessions of the convention

This meeting is for all women employed in any capacity in the industry, and a large attendance is anticipated.

HOME SERVICE

The Home Service Committee of the Commercial Section will hold lecture demonstrations on Tuesday, Wednesday, and Thursday afternoons in the auditorium of the Peoples Gas Light and Coke Company building. Mrs. Anna J. Peterson, director of home service for the Peoples Company, will be hostess. Demonstrations will be given by Frances Lauder, Battle Creek Gas Co., Battle Creek, Mich.; Grace R. Preston, Erie Stove and Mfg. Co., Erie, Pa.; Arra Mixter, Luzerne County Gas and Elect. Co., Kingston, Pa.; Flora B. Frey, East Ohio Gas Company, Cleveland, Ohio; May A. Bennett, East Ohio Gas Company, Cleveland, Ohio; Daurice Darling Boston Consolidated Gas Co., Boston, Mass.

At 5:15 Wednesday afternoon there will be an informal meeting of officials interested in home service work. An address will be given by P. D. Warren of The Peoples Gas Light and Coke Com-

pany, Chicago, Ill., and there will also be a playlet, entitled, "Fifteen Minutes of Home Service—A Good Way to Start the Day Right."

In the lounge at the entrance to the Ballroom in the Stevens there will be on display scrapbooks of home service activities.

On Tuesday, October 11, a luncheon for all home service directors will be served at the Stevens Hotel.

GENERAL

The Registration Bureau is located in the south Assembly Room, First Floor, Hotel Stevens, just south of the main elevator lobby.

Since admission to all meetings and functions is by convention badge *only*, all members and guests are requested to wear their badges all the time.

The registration fee for members will be the same as it has been in the past, $2. The registration fee for nonmembers will be $3.

The meeting rooms for the various meetings will be announced in the official convention program.

Register early and avoid the rush.

N. Y. Woman Wins Trip to Chicago Convention

Miss McDermott

MISS MARGARET McDERMOTT, stenographer in Consolidated Gas Company of N. Y., 57th Street office has won first prize in the contest of the Woman's Service Club of the company—a trip to the Chicago convention of the American Gas Association—for the best report submitted on a series of lectures on manufactured gas, "From the Coal Pile to the Final Balance Sheet."

Miss McDermott, who believes in doing her task, whatever it may be, well, is a member of the Board of Managers of the Woman's Service Club. She attended the cultural and public speaking class offered by the Club and in this direction made splendid strides.

The contest started last November with the first of the series of lectures given at Club dinners by leading authorities in the gas industry. From the lectures members made notes on which to base their reports. The following phases of the manufactured gas industry were covered: *Production*, by A. Gordon King, service engineer, American Gas Association; *Distribution*, by C. C. Simpson, Jr., general superintendent of the mains and services department; *Shop Practice*, by A. E. Turner, general superintendent of the cutomers' service department; *Utilization and Laboratory Work*, by N. T. Sellman, engineer of utilization; *Commercial Practice*, by G. A. Burrows of the Commercial Department. With the exception of Mr. King, all the lecturers are connected with the Consolidated Gas Company.

The judges were vice-presidents O. H. Fogg and W. Cullen Morris.

Among the many congratulations received by Miss McDermott is a letter from Mr. Fogg.

The report of Miss Gertrude Broda, of vice-president W. R. Addick's office, was given honorable mention.

C. A. Munroe Resigns from Executive Board

AT the September meeting of the Executive Board of the A. G. A. the resignation of Chas. A. Munroe from the Board was accepted with the following resolution:

"The Executive Board has received and accepts with profound regret the resignation of Mr. Charles A. Munroe, who has been a member of this Board from the organization of the Association and who was our second president. Mr. Munroe's long constructive service and leadership are greatly appreciated by the Board and we are sure by the industry."

Samuel Insull, Jr., president, Midland Utilities Co., Chicago, Ill., was elected to fill the vacancy. The following telegram, sent to Alexander Forward, managing director, expresses Mr. Insull's willingness to be of service to the industry: "Please accept personal thanks for your notification and also on behalf of American Gas Association for opportunity to be of service in the industry."

At this meeting, the following were elected to the Board, as representatives of the Natural Gas Department: R. W. Gallagher, president, East Ohio Gas Co., Cleveland, Ohio; N. C. McGowen, Louisiana Gas Co., Shreveport, La., and W. W. Freeman, Columbia Gas and Elec. Co., Cincinnati, Ohio.

New Testing Laboratory Building Planned

Executive Board Approves Report Recommending Erection of New Structure in Cleveland, Ohio

PLANS for a new and larger building for the American Gas Association Testing Laboratory at Cleveland, Ohio, have been approved by the Executive Board of the A. G. A. Work on the new structure will start within a short time, and by September 30, 1928, it is hoped all research and testing activities of the Laboratory will be housed in a new and efficiently arranged building of more than 21,000 sq.ft.

The following report was submitted to the Executive Board by a committee consisting of James Lawrence, chairman; R. W. Gallagher, O. H. Fogg, W. C. Beckjord, R. R. Young, J. S. DeHart, Jr., H. E. McGowan, and H. M. Brundage, and was approved:

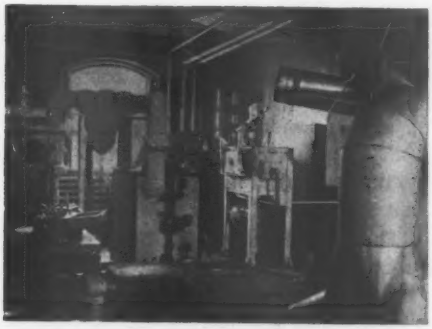
"The special committee appointed by the President in accordance with a resolution adopted by the Board at its meeting of June 3, 1927, have conferred at length respecting the desirability of the acquisition of a parcel of land and the creation of a building in the City of Cleveland, Ohio, to be utilized, together with its equipment, as a testing and research laboratory.

"From our knowledge of the necessity for this improvement and from data submitted at the meeting, we are unanimously agreed that the plans as outlined, including the larger building with approximately 21,000 sq.ft. of floor space, should be provided. The estimated expenditure, including the removal of the present equipment to the new building, will approximate $145,000.

"We are further agreed that, the Laboratory having demonstrated its value to the gas industry and being now in a crowded condition and furnishing inadequate facilities to accomplish the many tasks needed, both present and prospective, the American Gas Association cannot afford to allow its work to lapse or be retarded but must necessarily push on to even greater accomplishments. The proposed addition not only will do this, but will provide more efficient methods to accomplish the desired end."

The Laboratory has expanded so rapidly during the last year, due to the splendid support by both manufacturers and gas companies, that several of the testing departments are badly crowded at present, and additional space is necessary for the efficient functioning of testing programs already approved.

The Laboratory is now testing four



Two Laboratory scenes showing crowded working conditions

major types of domestic appliances, conducting research work on mixed gases, and completing other investigations necessary in the preparation of new requirements and the revision of old ones. These activities have taxed present facilities to the limit; several divisions, notably the water heater and central house heating sections, are hampered with lack of space, and the entire organization will be able to function more efficiently and with less lost motion when more adequate space is available.

At the present time the Laboratory occupies, for office, storage, and testing purposes, approximately 12,000 sq.ft. of floor space. According to estimates, about 20,000 sq.ft. will be necessary by 1930, and the new building is being planned to adequately care for demands for the next three years, with provision made for another floor if it be needed in the future.

The manufacturers will benefit materially from the new building. Whereas in the past a small workroom has been set aside for the manufacturers to work in, as many as ten representatives call a day in connection with the testing of their products. Some of them wish to connect their appliances and make the corrections required without having to incur the expense of sending the appliances back to the factory, and thereby eliminate valuable loss of time.

Ample space will be provided in the new building for this purpose.

That this service is appreciated is apparent from the many letters of appreciation received by R. M. Conner, director, and in his opinion it is the forerunner of a more important service when a department will be started for manufacturers to use as an experimental station.

The new building will be erected on ground near to the present building in Cleveland, Ohio. The site will be purchased from the East Ohio Gas Company, which has given the Laboratory such splendid assistance in the past two years.

The new building will be of brick construction, with face brick used throughout the front wall. The main support for the floors will be structural steel.

Prints of Who's Who Page Now Available for Members

STARTING with this issue of the MONTHLY, A. G. A. members will be able to secure reproductions of the Who's Who page on India-tint paper, suitable for framing.

Believing that there are many employees working with the men used as subjects for this page who desire to have this page for their own use, Association Headquarters has reached an agreement with the printer of the MONTHLY to supply these at cost. As near as can be determined now, the cost will be from ten to fifteen cents each.

Orders for the prints must reach the editor of the MONTHLY on or before the 15th of the month following date of publication.

It is also possible that arrangements can be made to supply prints of the pages which have appeared in previous issues, depending on the demand for the same.

The New Day of Gas Service

In an incredibly short space of time the Testing Laboratory of the American Gas Association has become a rallying point for our entire industry. Progressive in its policies, constructive in its direction, it has gained the enthusiastic support of both the purveyors of service and the manufacturers of appliances.

In the Testing Laboratory, the gas industry recognizes once again its obligation to the public which it serves. More than this, however, the Laboratory represents one of our greatest opportunities for expanding service, which can result only from the continuing and growing confidence of our people.

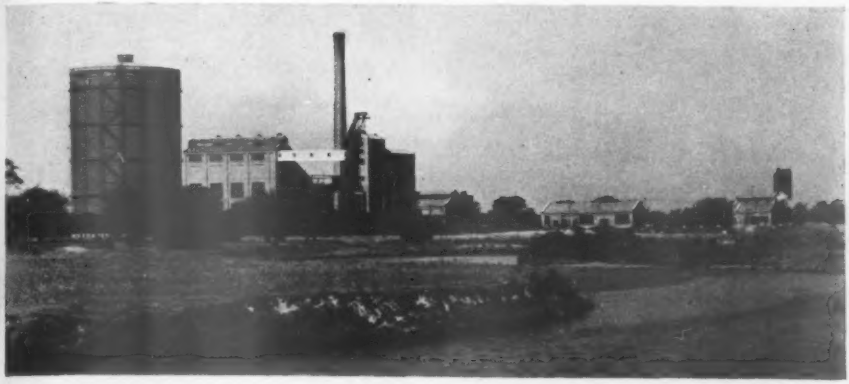
Let us unite in making this Seal of Approval the distinctive emblem of our leadership

CONSOLIDATED GAS COMPANY OF NEW YORK

GEO. B. CORTELYOU, President

1823—MORE THAN 100 YEARS OF UNINTERRUPTED PUBLIC SERVICE—1927

A gas company's message to the convention in one of the special issues of the gas trade press



Holder at Detroit which now serves as a beacon to aviators

Gas Industry Aids Aviation Development

Companies Demonstrate Willingness to Paint Direction Arrows and City Names on Gas Holders

WITH interest actively aroused in air transportation and traffic by the recent flights, the nation-wide tour of Col. Chas. A. Lindbergh, and the proved practicability of the air mail, gas companies are rendering a new form of public service by willingness to convert gas holders into beacons. Several companies have painted suitable markings on the top of gas holders, usually a white arrow pointing the direction to the nearest landing field, and the name of the town in black letters.

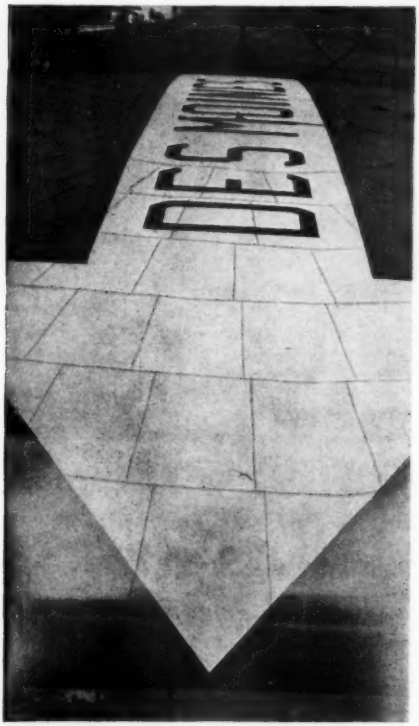
As far as can be determined, much good will is being created for the companies in performing this act of public service. It not only calls the attention of the aviators and the public to the gas holders, but also causes people to realize that their utility is anxious to serve in every possible way it can.

At Detroit, Mich., a three-million cu.ft. waterless holder is today of great service to aviators. C. W. Bennett, vice-president, Detroit City Gas Company, writes as follows concerning the new air beacon:

"A three-million cu.ft. holder at the River Rouge Station of the Detroit City Gas Company is of service to aviation as a guide to a nearby landing field. Naturally conspicuous because of its dimensions, it has been made more so by painting it a vivid color and by placing directional signs on its broad top.

"This use was suggested by the experience of flyers while the holder was under construction in 1925, who observed that in its shop's coat of red lead paint it was the most strikingly visible object in the vicinity and was of great assistance to them in locating the landing field of the Ford Motor Company some two miles distant in the village of Dearborn. The use of the holder as a landmark was reported by the Ford Motor Company, and the Detroit City Gas Company arranged to retain its value for the purpose by making the final field coat of paint an orange red in place of the modest grey shades that had been contemplated. In addition to this a broad, white arrow was painted across the top, pointing directly to the landing field.

"The holder is 145 feet in diameter and 205 feet high, and with its bright color and white arrow stands as a wel-



As the aviator sees the Des Moines holder

coming guide to the homing plane or dirigible."

DES MOINES HOLDER GUIDE TO FLYERS

After completing the painting of a holder at Des Moines, The U. G. I. Contracting Company, at the request of the Des Moines Gas and Electric Company, painted on the crown of the holder an arrow as a guide for aeroplanes passing over the city. The arrow is 130′ long at the head, which is 35′ wide; the body is 15′ wide. Two coats of flat white paint and one coat of flat white enamel were used and the name "Des Moines" appears in black.

It is expected that markings similar to those on the Des Moines holder will be painted on a holder of the N. Y. State Gas and Electric Corp. at Ithaca, N. Y.

C. E. Bennett, vice-president, Binghamton Gas Works, Binghamton, N. Y., reports that his company also has painted a directing arrow on the top of one of the holders.

American Gas Coal Was Found Superior by Irish

INTERESTING comment on the quality of American gas coal was given at the recent meeting of the Irish Association of Gas Managers, at Cork, Ireland, by Joseph McNicholl, president of the Association, in his presidential address.

Mr. McNicholl, who is manager of the gas works of the Cork Gas Consumers Company, spoke as follows:

"It is always of interest to obtain first-hand knowledge of the production of coal fields hitherto unknown to us, and to the coal stoppage may be given the credit for enlarging our experience of the world's coal fields. It would, however, be a case for gratification rather than regret if we were never given the opportunity of becoming acquainted with much of the material which was sold as coal at that time by many Continental firms.

"They were seldom, if ever, up to specification, and in addition were almost in every case considerably short in weight. On the other hand, it is a pleasure to join in the practically general chorus of appreciation of the supplies received from the American coal fields. Our experience in Cork with coals from this source was very favorable indeed, some of them being of excellent quality and quite as good as any I have had the privilege of carbonizing."

Waterless gas holder at Binghamton, N. Y., that helps air men find their way

Salve vs. Medicine for Curing Rate Ailments

Rate Indigestion Needs More than External Poultices; Rate Rheumatism Does Not Call for a Major Operation

By C. S. REED
Rate Consultant, American Gas Association

C. S. Reed

CASTOR oil is not recommended as a sure cure for a black eye or a sore toe. Neither is iodine or salve advised as a remedy for indigestion or other internal complications. As a curative each has its own proper sphere.

Gas companies, as well as people, have their ailments. Some of them have an unhealthy look, possibly even a black eye or two, due to poor public relations. Others have internal complications, causing poor earnings. Others are suffering from indigestion due to a large number of convenience users who are being served at less than cost. This latter condition is being gradually but steadily augmented by the change in living conditions which is going on about us, that drift toward a more complete use of the service of the baker, delicatessen, laundry, and small restaurant to which attention has been called by other writers. If this is permitted to continue, without corrective measures, it will be necessary to raise rates to all customers.

The straight meter rate of so much per thousand cu.ft. is receiving more and more blame for the ills of gas companies. A number of remedies have been suggested in the way of changes in rate forms. These fall generally into two classes:

First, those rates in which lower priced gas is offered to all users of more than 2500 or 4000 cu.ft. of gas a month. Such rates may be of the so-called quick-break type or they may be expressed as optional rates available to all customers. No bills are increased and it is therefore easy to put such rates into effect. Either of these schemes may also embody an hour's use provision.

Second, those rates which increase the bills of about half of the customers and lower the bills of the remainder. Service charge rates and rates with a high charge for the first few hundred feet of gas fall in this class. A demand provision is also sometimes included.

Returning to our medical analogy, we find we have available two remedies for the ills which beset the companies; namely, salve and medicine, and we will find that the decision as to which one to use depends upon the condition of the patient and the extent to which he has suffered on account of straight meter rates.

If a company is making a fair return, or nearly so, and wishes to clear up its public relations and make a better appearance, the salve of a quick-break or optional rate can be applied to good advantage. The application of this type of rate means merely the giving away of some of the surplus profits which are being made on the service rendered to the large users. Sales should be stimulated somewhat, even to the extent of bringing the gross revenue back to the point from which it started. Any company which is suffering from too much earnings can rid itself of them easily and painlessly with quick-break or optional salve.

On the other hand we have the company which finds itself gradually slipping and losing its proper earnings. The congestion of small and unprofitable customers has increased in such cases to where a good dose of service-charge medicine is necessary. The even tenor of one's way may be disturbed a bit by the application of a rate which increases the

bills of 50 per cent or more of the customers, but in most cases such action is becoming more and more necessary.

Most gas company executives admit that the installation of a high service charge or a high charge for the first few hundred feet would be very desirable, but they offer two stock arguments against the plan:

1. It cannot be done. The customers, so they say, dislike the bitter medicine of a service charge even as much as they dislike the medicine which it represents in our analogy.

2. Even if it can be done, it is not *expedient* at this time to make a change in rate form.

1. CAN IT BE DONE?

Upon questioning the folks who say it cannot be done, we find they are not basing their opinions upon actual experience. Instead, they base their opinions upon the experience of companies which installed service charges as increases in rates, service charges which came as added charges for which the customer received nothing additional and which he therefore resented. They are not basing their opinions upon cases where service charges were installed as even trades upon present revenue, or as decreases, and where a substantial slash in the meter rate was offered in exchange for the service charge. They are not basing their opinions upon cases where the service charge was sugar-coated by the inclusion of a few hundred cu.ft. and where a substantial cut was made in the meter rate. *Ninety per cent of those who say it cannot be done have never even figured out how low a commodity charge they could offer to their customers in exchange for a service charge of $1 a month or more.*

Patients will take a bitter medicine if they can be shown that it's good for what ails them. The offer of a decided cut in the meter rate will compensate most customers for an increase in the charge for the first few hundred feet.

Fortunately, "some dern fools didn't know it couldn't be done and so they went ahead and did it." For instance, one manager who installed a high charge for the first 200 cu.ft., increasing the bills of 70 per cent of his customers, writes that his public relations situation has greatly improved, owing to the smoothing out of the bills and the resulting decrease in high bill complaints.

2. WHEN SHOULD IT BE DONE?

If it is not expedient at this time to change a rate form, *just when will the time come?* Shall we wait until more revenue is needed and an increase in rates is to be asked for? Surely the gas industry has had one experience which should be a lesson to it in that regard, namely: The installation of service charges as increases in rates. The customers will regard a service charge differently when it comes accompanied by a decided slash in the meter rate. This means that the time to install such rates is now, when we can do it as an even trade or as a decrease in revenue. *The longer we wait the more difficult it will be.*

The trouble with many gas companies is deep-seated. As long as they continue to serve more than half of their customers at a loss, the attempt to get back this loss as an added profit from the service to the large customers will prevent proper expansion. This internal trouble cannot be cured by offering reduced or optional rates to a small percentage of the customers, any more than you can cure a case of appendicitis by rubbing a little salve on the end of your finger.

Belgian Red Cross Uses A. G. A. First Aid Book

A REQUEST from the Director of the Belgian Red Cross for permission to translate and publish the First Aid Book of the A. G. A. has been granted by the Executive Board of the American Gas Association.

One hundred feet of 24" horizontal part of syphon ready to be laid

Interconnection Solves an Economic Problem

Sixteen-inch Gas Main Laid Between the Plants of the Salem Gas Light Company and the Beverly Gas & Electric Company

By PETER F. PAFFEN
Gas Engineer, Charles H. Tenney & Co., Boston, Mass.

EARLY in 1926 the question of purchasing gas from the Salem Gas Light Company for the entire requirements of the Beverly Gas and Electric Company was considered.

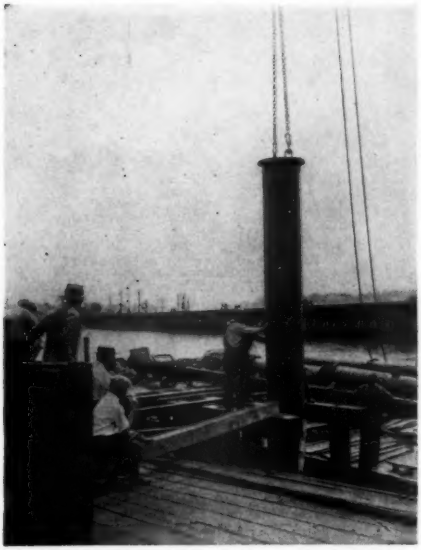
Due to the fact that the Salem Company at that time was independently operated and in no way connected with the Tenney organization we did not concern ourselves greatly about the methods under which gas was to be delivered to Beverly as long as Beverly was adequately supplied and the price from Salem lower than gas could be manufactured at the Beverly plant.

This situation, however, materially changed when in the latter part of 1926 the Salem Company came under the management of Charles H. Tenney & Company.

From the standpoint of economy it did not seem advisable to operate two plants, geographically separated by the Danvers River and less than a mile apart, having a combined output of about 565 M. cu.ft. per year.

24" flexible joint and drip pot

Due to the location of the Salem plant on the river front and its excellent facilities for handling coal and oil, far superior to the Beverly plant equipment, there was no question but that the manufacture of the entire gas requirements for both Salem and Beverly should be confined to the Salem plant.



Lowering 48 foot riser into position

The storage holder capacities at the two plants were an important consideration in developing the design of the connection between the two plants. Salem, with an annual output of approximately 365 million cu.ft. and a maximum daily send-out of more than one and one-quarter million cu.ft., depends entirely on a storage holder capacity of only 500,000 cu.ft. and a relief holder of 200,000 cu.ft. capacity.

Beverly, with an annual output of approximately 200 million cu.ft. and a maximum daily send-out of 750,000 cu.ft., has a storage holder capacity of 1,300,000 cu.ft. in two holders, besides a relief holder of 100,000 cu.ft. capacity.

After a careful study as to the most economical way to send gas from Salem to Beverly, making the best use of the large holder at Beverly for service in both territories, it was decided to install a 16″ pipe line between the Salem works and the Beverly 1,000,000 cu.ft. holder. This necessitated a syphon under the Danvers River, which is open to navigation. The syphon is constructed of 24″ piping.

The capacity of this line is far in excess of present needs, but considering the many advantages of the larger pipe line over a smaller one, we are satisfied that the initial greater cost of installation is justified.

To put the gas from the Salem plant through the tie-line into the one-million cu.ft. holder in Beverly, we are utilizing the present exhausters. Ample pressure is available and to all intents and purposes the Beverly holder becomes a part of the Salem plant. The requirements of the Beverly Company are metered as used from the large holder.

First: The tie-line is made up of three classes of construction. The syphon is of Class "C" flanged pipe (A.W.W.A. specifications) 24″ diameter, varying in length from eight to twelve feet.

Second: 16″ steel welded pipe, ⅜″ thick, which, connects the top of the syphon at either end to the cast-iron main. This steel pipe is exposed and supported on wood-pile structures.

Third: 16″ cast iron Class "B" bell and spigot water pipe (A.W.W.A. specifications) laid underground in Salem, a distance of about 1500 ft. and connecting with the yard piping of the Salem plant and in Beverly extending from the shore of the Danvers River to the one-million cu.ft. holder at the Beverly plant, a distance of 2450 ft.

24 inch flexible joint

The syphon consists of two vertical risers connected to a one-hundred foot section laid level in a trench dredged 25 ft. below the present channel bottom. Three flexible joints, one in the center and one at either end are used. The end flexible joints are connected to 24" drip pots, which form the supports for the risers, which extend up from the drip pots a distance of 49 ft. to the center of the steel pipe line carried on piles to the shore.

In the flanged pipe ⅛" lead gaskets were used, the flanges being bolted together with 1¼" Monel metal bolts.

Deep well pumps, electrically operated, are installed over each riser for pumping the drip pots.

All cast-iron fittings were given a hydro-static test of 200 pounds per sq.in.

The steel piping is made from lap-welded tubing ⅜" thick and furnished in lengths of approximately 20 ft. alternately with both ends plain or both ends sleeve for field welding.

The total length of steel piping on the Salem side is 550 ft. and on the Beverly side 350 ft.

The wood-pile supports are driven on 45-ft. centers. Four Dresser couplings are used for expansion joints.

The 16" cast-iron mains were made up with sand-cement joints exclusively. Decision to use this joint was based on extensive tests and we believe no other form of joint offers freedom from leaks as does the sand-cement joint. *Of 249*

(Continued on page 635)

Detroit Company Supplies Gas for Balloons

Unique Engineering Problem Solved in Pumping Gas to Airport by Means of Steam Locomotive

THE Detroit City Gas Company played a most important role in the international balloon race for the Gordon Bennett cup, held in Detroit, September 10, the participants taking off from the Ford Motor Company's airport. The balloons were of the 80,000 cu.ft. class, and fifteen bags were entered to represent five countries.

Gas of a specific gravity of about 0.40 for filling the balloons was supplied from the Dearborn transmission main of the Detroit City Gas Company, which skirts the field. This is an 8" high-pressure steel main supplied by compressors at the River Rouge Station capable of pumping at more than 50 pounds pressure.

To supply gas at a rate that would fill the balloons in a reasonable interval in addition to carrying the normal distribution load on this system, all the available high-pressure pumping equipment in the plant was put into service.

The filling of the balloons was started at 3:00 a.m. on the day of the race, in order to be certain that they would all be inflated well in advance of the take-off, which was scheduled for 5:00 p.m.

The improved method of supplying steam for the compressors is of interest. The River Rouge station is at present held as a reserve plant and for some months had not been in operation, the load on the Dearborn system being cared for by an electric-driven compressor, which is automatically controlled.

To avoid the trouble and expense of starting up the boiler plant for the brief period required for the balloon inflation, two locomotives loaned by the Michigan Central Railway Company were pressed into service. These were placed on a siding adjacent to the pumping plant and temporary connections made to the plant steam piping so as to provide power to drive the compressors.

Brooklyn Union Offers Course to Employees

C. E. Paige

AS a result of the combined efforts of C. E. Paige, vice-president of the Brooklyn Union Gas Company and Dr. Parke R. Kolbe, president of Brooklyn Polytechnic Institute, a course on the Elements of Gas Engineering is being offered to the employees of the gas company, the course being given at the Institute. This cooperation of a large manufacturing concern with a college of engineering is highly commendable and can only work for the good of both parties.

The announcement recently made to the employees of the gas company states that the course is offered to those employees who are engaged in work where a knowledge of the theory underlying the practical operations which they carry out, will be helpful. The course is designed particularly for those men who, after attending a high-school course or its equivalent, have not had the opportunity to carry their studies further. The company further states that the cost of the course will be paid on the basis of one half by it and one half by the employee and upon the successful completion of the studies, the employee will be refunded the amount paid. The employee will be permitted to pay his part in easy installments.

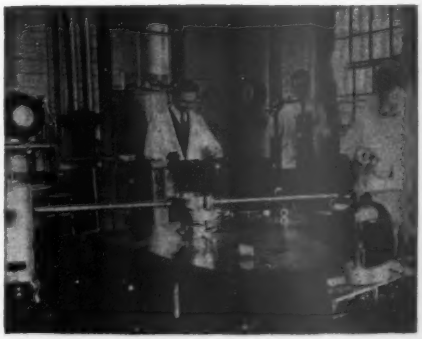
Many men will undoubtedly avail themselves of this beneficial training inasmuch as it can only materially help them and make their daily tasks more interesting.

The course as designed consists of twenty lectures and twenty periods of laboratory practice. The lectures, most of which will be delivered by Professor John E. Setchell, of the Institute's Mechanical Engineering Department, will start with a brief review of the past history and development of the industry. This first lecture will be supplemented by many interesting slides, gathered by the late Dr. A. H. Elliott, well-known gas chemist and engineer, showing the progressive steps in lighting, including the primitive Indian fire sticks, torches, oil lamps, candles, matches —all the methods of kindling a flame. The following lectures will proceed with a consideration of the general physical laws of gases and of the chemical principles of combustion and of gas making. The lectures will also include a consideration of the many practical applications of gas to present-day manufacturing and heating of dwellings, as well as the cooling of food as a substitute for ice.

This will all be supplemented and amplified by experimental work done during laboratory sessions. The apparatus of the physics, heat treatment, forge, foundry and mechanical and chemical engineering laboratories will be available for this work.The special gas laboratory which, in cooperation with the Brooklyn Union Gas Company, has been installed at the Institute, will be used for the principal part of this work. This is a most up-to-date gas-fired equipment laboratory. It includes the most modern gas-fired equipment that has been found commercially practicable and efficient.

The course will be under the direct supervision of Professor E. F. Church, head of the Mechanical Engineering Department, together with Professor John E. Setchell who is giving all his time to this work. Among the lecturers will be E. C. Uhlig, chief chemist of the Brooklyn Union Gas Company, and chairman of its educational committee, Joseph Jares and T. B. Merkt, members of the gas company's technical staff and associated with the Evening Department of the Institute. Mr. Merkt and John Anthes, of the Chemical Department of the gas company, in cooperation with the professors in charge of the mechanical, physical, and chemical laboratories at the Institute will supervise the laboratory exercises.

The course starts on Thursday, October 6, and continues for twenty weeks.



Water heater testing at the A. G. A. Testing Laboratory, Cleveland, Ohio

The Architect's Place in the Picture

Points on the Necessity for Close Cooperation with the Architectural Profession

By Robert B. Mahn
Chairman, Architects' and Builders' Service Committee

QUANTITY production brought about by advertising can very readily be nullified if the path between producer and the buyer is not leveled with common sense service. Unquestionably advertising extends the market and promotes quantity production, but to introduce any new product or system through advertising alone is almost an impossibility.

Supposing an engineer has spent years in perfecting a new method or device of some kind to be used in the construction of new buildings, which might be a definite and decided improvement over any other method or system used for a similar purpose, or that a mechanic has evolved a material for new buildings which proves practical and he is positive his material is an improvement over any similar product specified by the architect or engineer.

Both men recognize the fact that they must obtain the architect's approval or recommendation of the merit of their product in order to obtain a standing in the building field.

Again, suppose these men, or concerns, decide to advertise their products through architect, building and engineering channels, and follow this up with form letters accompanied by the usual bulky and varied size catalog material, completing the machine of campaign by an order to the sales force to make contact with the architects at once and close contracts on the spot.

Unless the advertising and the sales contact are based on sound practical conception of the architect's procedure and built on a sympathetic knowledge of his problems, then their success will be like the house built on sand.

It is a fact that the architect must keep pace with the constant progress made in the world of construction, but if he attempted to read and digest *all* the material he receives, and see but a fraction of the salesmen sent to him, he would require a force of secretaries.

An architect of my acquaintance told me recently that he does not attempt to keep catalogs which will not fit his American Institute of Architects' file, because if he did, "I would have to rent additional office space to keep them all." He further went on to say that no doubt many of these catalogs contained extraordinary valuable information. Nevertheless as there were only so many hours in the day at his disposal, it would be a physical impossibility for him or any other architect to read and digest the vast mass of material received daily. On the other hand, when data on materials and devices come to him in brief, logical text form, lined out in the method the architect requires for filing such data (A. I. A. Standard Filing System) it is doubly welcome.

No doubt if an architect could listen to all salesmen and all they could tell him about their materials or devices, he would secure practical results of various materials and methods adaptable to his particular kind of planning. But again that would be physically impossible.

Does the architect's lack of knowledge of these particular materials he has been forced to pass by imply that they are worthless or inefficient? By no means! Rather the burden of this lack is on the manufacturer, producer or utility company. It is squarely up to them to reach the architect in the way he wants to be reached, through proper advertising, as touched on above, and through the logical

channel of advisory or service contacts.

Undoubtedly, the promotion of sales through contacts formed with the architect and engineer along lines of helping the architect or engineer to give his client the utmost service will eventually result in steadily increasing business for manufacturer or utility. In his promotional capacity, the architectural service man makes open the way for the commercial salesman. I do not wish to imply in any way that the salesman cannot close sales with the architect, for they do, by the hundreds, but I do state emphatically that the product, no matter what it may be, in order to be substantially used *year in and year out,* must be backed by willing and comprehensive service. The effectiveness of these contacts is in proportion to the service man's sincerity in rendering help to architect or engineer. If it is done merely as an entering wedge for the salesman, a gesture of service, then permanent results cannot be looked for. There are today literally hundreds of industrial, commercial, and utility concerns who recognize this fact by maintaining sound, adequate service departments for the architect's use to benefit his clients.

The following extract from one of the many catalogs an architect receives illustrates this trend:

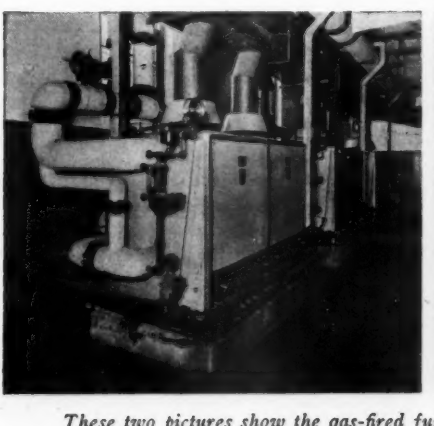
"The New York District Common Brick Manufacturers' Association has as one of its purposes the greater extension of the present knowledge of brick, and hopes to accomplish its aim through an intelligent and unbiased service to the architectural profession and the public generally. This service, by those familiar with the work and problems of the profession, is offered without charge or obligation of any kind. It is hoped that you will use it whenever opportunity occurs."

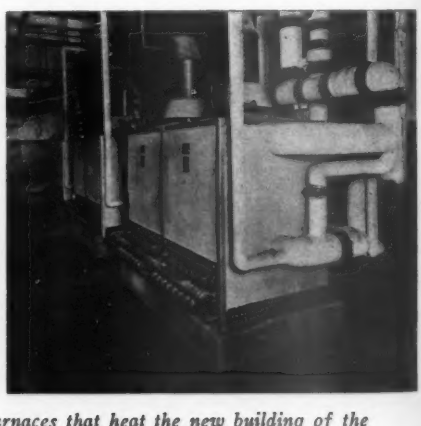
The Peoples Gas Enters Radio Broadcasting Field

THE Peoples Gas Light and Coke Company, in conjunction with Commonwealth Edison Company, Public Service Company of Northern Illinois, Chicago Rapid Transit Company, Midland Utilities Company, Middle West Utilities Company and the North Shore Line have purchased and are now operating radio stations WENR and WBCN on a wave length of 288 meters (140 kilocycles). The operating company is known as The Great Lakes Broadcasting Company.

Programs will be given from noon to midnight. Morgan L. Eastman, formerly director of the Edison Studio and director of the Edison Symphony Orchestra, has been made manager of the WENR-WBCN stations. A staff embracing all male and female voices, a dance orchestra, two organists, instrumentalists and entertainers has been retained. A special feature will be the daily broadcast of opera news.

Mrs. Anna J. Peterson, home service director, will be heard at 11 a.m. daily except Sunday on WBCN and at 11:30 a.m. daily except Sunday on WENR.





These two pictures show the gas-fired furnaces that heat the new building of the Westchester Lighting Co., Mt. Vernon, N. Y.

The Pharmacological and Therapeutic Properties of Alpha-Lobelin

A Comparison of its Action on the Respiratory Center with That of Other Respiratory Stimulants

By VICTOR H. NORRIS and SOMA WEISS

From the Thorndike Memorial Laboratory, Boston City Hospital, and from the Department of Physiology, Harvard University, School of Public Health, Boston, Massachusetts

NOTE

THIS research was aided by a grant from the Resuscitation Commission of the American Gas Association.

The article is an abstract of one appearing under the same title in the May, 1927, issue of The Journal of Pharmacology and Experimental Therapeutics. Copies of the complete reprint may be had from A. G. A. Headquarters.—Editor.

MANY substances stimulate the respiration but the number of useful respiratory stimulants is restricted by the fact that stimulation of the respiration is often associated with undesired side actions. Because of the close connection of the medullary centers, almost all the respiratory stimulants act, though in different doses and intensity, on all of these centers. It is essential therefore that *(a)* the latitude between the doses acting on the respiratory and other centers should be great; *(b)* furthermore the type of stimulation should be such that the resulting increase in ventilation is rather the consequence of an increase in the depth of the individual breath than of an increase in rate. The purpose of a respiratory stimulant is to facilitate gaseous exchange in the alveoli. This is obtained most effectively when high ventilation is the result of a balance of slow rate and deep breathing. A stimulant may produce a slight increase in the ventilation by a considerable rise of the rate but such a condition may actually hinder the alveolar exchange of gases and, so far as tissue respiration is concerned, the result is more of a depression than stimulation. In judging the efficiency of a stimulant, the relation of change in the rate to that in the ventilation is important. *(c)* Because all the respiratory stimulants are depressants in larger doses, the dose for stimulation should be a low percentage of the fatal dose. *(d)* Finally any stimulating effect on respiration must persist for a relatively long time, or the frequent repetition of the dose should result in repeated stimulation. A respiratory stimulant which lacks the possibility of reasonably prolonged effect has little practical value.

Our work has convinced us that the efficiency of a stimulant varies considerably under different states of the respiratory center. It is important therefore that the same drug should be tested under different conditions. This consideration explains at once the difficulties encountered in the test of a stimulant clinically, where several of the important variables are unknown or difficult to determine.

In testing alpha-lobelin, the crystalline alkaloid of lobelia inflata, prepared by Heinrich Wieland and studied by Hermann Wieland and Mayer, we have made use of the commonest emergency conditions which demand respiratory stimulation, namely:

a. Morphine poisoning.

b. Poisoning by derivatives of barbituric acid and chloral.

c. Poisoning by combination of morphine and of barbituric acid derivatives.

d. Carbon monoxide poisoning.

e. Increased intracranial pressure.

The experiments were performed on

(Continued on page 610)

"Stills" from the New American Gas Association Film on the Prone Pressure Method of Resuscitation

Top: Placing patient's head in correct position to insure that nose and mouth are free for breathing

Center: Position of hands on patient's back with fingers resting on the ribs

Below: Showing the use of inhalator in an asphyxiation case

Artificial Respiration Film Now Available

Association Announces Release of One Reel Film on Application of Prone Pressure Method

THE American Gas Association now has available for member companies an authentic film portraying the application of the Schafer Prone Pressure Method of Artificial Respiration in cases of drowning, electric shock, or asphyxiation. The text utilized in preparing the film is the standardized text describing the application of the Schafer Method as recently agreed upon by the following national organizations interested in this subject: American Gas Association, American Medical Association, American Public Health Association, Bethlehem Steel Corporation, National Electric Light Association, National Safety Council, United States Army, United States Bureau of Mines, United States Bureau of Standards, United States Public Health Service, and United States Navy.

The film has been reviewed by and carries the approval of the Commission on Resuscitation and the Accident Prevention Committee of the American Gas Association, and represents the best thought of those who are daily engaged in utility safety work. In addition to showing the application of the method according to the standardized text the film shows several minor variations in the method which have proved successful in the saving of human life and are regarded by many as of equal value.

The film shows the application of the method in connection with a drowning case, electric shock, and asphyxiation from motor exhaust. It is suitable not only for assisting in training of employees, but also is sufficiently dramatic and inspiring to be of substantial value to companies in promoting the use of the method by persons other than employees.

The titles utilized are accurately expressed and tell both what to do and what not to do in order to accomplish successful resuscitation. They are simply worded so that any one can understand them and learn the fundamentals of the method.

The photographic work is high class in every detail and the animation used to illustrate the reasons for and the effect of artificial respiration is particularly striking and easy to comprehend.

All of those who have seen "Artificial Respiration" have come away enthusiastic over it and the possibilities of employing it profitably in spreading knowledge of artificial respiration and saving human life.

PUBLIC SHOWINGS

It is anticipated that many showings of the film will be given to the public in local theatres and at exhibitions. It will also be desired by safety councils and other local organizations promoting safety in the territory where it is available.

More than twenty orders were received for the film before its publication was begun. The film, which is available at cost to the Association, is priced at $100, this being substantially below the general charge for such a production. Copies can be had in either 35 MM (standard width) or in 16 MM (narrow width) on a reel and in a one reel metal shipping case.

In addition to affording the means of bringing employees more effectively in the Prone Pressure Method on resuscitation the film offers the gas companies the opportunity of making a worth-while contribution to the safety movement in their communities with resulting betterment in public relations locally, in addition to filling a long-felt want for use in instructing employees in the prone pressure method.

Editorial

Capitalize Convention Attendance

By ALEXANDER FORWARD
Managing Director

IN view of a large attendance at the coming A. G. A. convention, the high calibre of the speakers, and the importance of the subjects to be treated by them, our message this month concerns the profitable use of convention attendance by all of our member companies.

This year many companies situated in the Middle West will have from three to ten times as many people at the convention as they have had in previous years. Probably no one realizes more than the executives of these companies do the golden opportunity that is offered. They will receive from their delegates knowledge that will be of priceless value to the employees, their company, and their fellow-employees.

Especially gratifying is the decision of some Eastern companies to augment the list of men and women they are sending, rather than to cut it down. These companies realize the true benefits of convention attendance, and it can be said that almost without exception they are the companies that have devised practical methods for utilizing the knowledge gained at conventions.

Those companies sending fewer men this year realize more than ever before the absolute necessity of using convention attendance for the benefit of those who cannot go.

Many gas companies have worked out comprehensive plans for bringing the convention back home. The month immediately following the A. G. A. convention should see hundreds of small "A. G. A. conventions" all over the country.

News

NOW that the tumult and the shouting of the amalgamation of the Natural Gas Association of America with the A. G. A. has died down, and on every side mutual satisfaction has been expressed, it is time to give some consideration to the orientation of our new members.

To the members of the Natural Gas Department we offer every service of the united Associations. It is our sincere wish that these services will be utilized to the utmost.

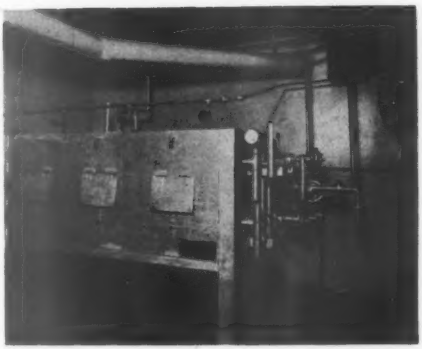
News of the Association will be broadcast to Natural Gas Department members through *Natural Gas,* and through the A. G. A. MONTHLY. In future issues of these magazines there will be articles on every branch of Association activity, from the medals offered for saving life to the various ramifications of engineering and technical service.

Industrial Gas Research Goes Ahead Apace

Year of Progress is Reported by the Special Committee on Industrial Gas Research

By C. W. BERGHORN
Secretary, Industrial Gas Section, A. G. A.

THE first year of activity of the Committee on Industrial Gas Research is ended. The function of the committee is to advise and supervise the work of industrial research for which a fund of $100,000 per year for five years has been underwritten.



Experimental oven used in baking research

Two problems confronted the committee at the beginning: 1. In what industries shall the research be carried on (obviously all could not be undertaken at once)? 2. What agencies shall be created or used to carry on the work?

The first question was answered by a survey carried on in 15 different cities that gave the answer in which industries our great potential opportunities exist.

The answer to the second question became obvious when the survey was completed. Only manufacturers of industrial equipment with a research and engineering organization and numerous contacts among the industrial plants of the country could carry on this work.

The survey and tabulations of the potential market for gas were therefore sent to all the manufacturers of industrial equipment with a request that they analyze the potential opportunities and present a plan of procedure for research to create the equipment to secure this load.

The committee interviewed the principals of most of the industrial gas equipment manufacturing companies and selected two concerns, The Surface Combustion Company and The National Machine Works as being best qualified to initiate the work.

The survey showed that the activities will be most remunerative in the fields of forging, heat treating, baking, non-ferrous metal melting and heat treating, also the development of a radiant heat burner to be used in the above and other heat applications. The committee decided, therefore, to dedicate the first year to the problems in the above industry and heat processes.

To produce equipment that will be of value to the gas industry, it is necessary to consider and embody the best technique of the industry that will use the product; utilize the best gas utilization technique in order to secure the greatest value from our fuel, and embody the practical shop requirements of a working machine.

To coordinate the technical requirements of industry with the combustion technique as well as the practical embodiment in a machine, requires the coordination of three agencies with three different viewpoints: The combustion engineer, the industrial research chemist or physicist, and the production shop. This requirement the committee feels has been satisfactorily created and the best talent employed using the following relationship.

The contractual arrangements with the manufacturers of industrial gas equipment were supplemented by underwriting research fellowships in the American Baking Institute and University of Michigan. These two fellows work in cooperation with the research engineer of The Surface Combustion Company. The contact with industrial plants is made in the most feasible manner presented. In that way is secured the necessary coordination of all agencies needed for best results.

The actual research was not undertaken until the allocation of proper objective, the organization of research staff and the practical solution of the problem of relationship, finance, etc. It is functioning smoothly now and should be conducive to quicker results from now on.

For the period just closed it can report the following progress:

A—The completion of tests at the Baking Institute showing the fundamental requirements of a gas-baking oven. The second step of procedure in this division is to build an oven that will embody the advance knowledge secured from these and other tests.

B—The development of a high-temperature conversion system that makes possible higher efficiencies which equipment has already been embodied in a brass melting furnace now in process of being tested in a production plant and on which preliminary tests show satisfactory advantage over old methods. The embodiment of a radiant system of combustion in varnish boiling shows a remarkable increase in efficiency, namely an increase of 85 per cent over the best systems used in the past.

C—The development, design and construction of a testing unit for the heat treatment of non-ferrous metals that should give us an answer on how to heat non-ferrous metals direct with higher gas economies than at present.

D—The design of rotary bolt heading forge furnace automatic in operation and on which labor saving can be credited to the fuel.

Outlines of tests necessary for the proper development of three types of forging units and many other studies which are the basis of future work.

The work for the balance of the year 1927 covers the same divisions.

That portion of the undertaking allotted to the National Machine Works is progressing satisfactorily.

The committee feels that the progress made to date is most encouraging and that the set-up for the remainder of this year shows comprehensive procedure with reasonable assurance of practical success.

The committee has decided upon the employment of a contact man to facilitate the work of reporting more frequently and more completely the information on progress and activity of the Research Committee and to keep in touch generally with the needs of the industry and their most probable solution.

The membership of the Committee on Research in Industrial Gas Utilization is as follows:

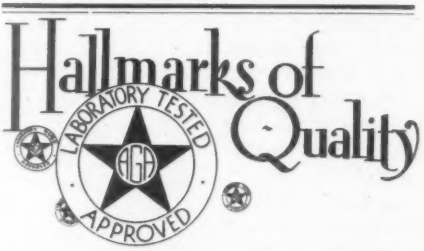
F. J. RUTLEDGE, *Chairman*, The United Gas Improvement Co., Philadelphia, Pa.
C. W. BERGHORN, *Secretary*, American Gas Association, New York, N. Y.
J. B. ALLINGTON, Rochester Gas & Electric Corp., Rochester, N. Y.
J. W. BATTEN, Detroit City Gas Co., Detroit, Mich.
D. W. CHAPMAN, The Peoples Gas Light & Coke Co., Chicago, Ill.
J. P. LEINROTH, Public Service Electric & Gas Co., Newark, N. J.
J. F. QUINN, The Brooklyn Union Gas Co., Brooklyn, N. Y.
N. T. SELLMAN, Consolidated Gas Co. of New York, N. Y.

AS of September 1, 1927, the office of the former National Gas Association of America, Oliver Bldg., Pittsburgh, Pa., has been discontinued. All communications should now be addressed to the Natural Gas Department, American Gas Association, 420 Lexington Ave., New York, N. Y.

Standardization—A Tool of Modern Industry

Gas Industry Plays an Important Role in the Nation-wide Movement to Combat Unnecessary Waste

By A. GORDON KING
Service Engineer, American Gas Association



THE LABORATORY'S INFLUENCE

IN his consideration of the many examples of standardization in the gas industry, and the myriad benefits resulting, the author finds the work of the A. G. A. Testing Laboratory of importance. While most of our members have probably not considered the Laboratory in this light, Mr. King's point presents a new slant to the approved appliance idea, and one which brings out again the real value of the Laboratory.—Editor.

BECAUSE standardization is one of the most important controlling factors in America's amazing and unparalleled prosperity, the results achieved by application of its principles are clearly discernible in fields other than the industrial world where at first glance they would appear to be confined.

Examples of this, which might well be termed economic cooperation or "team work," are to be found in our homes, our transportation, our apparel and other innumerable "services" that serve to make the world a better place to live in, as well as raise American standards of living to even higher and better levels.

The gas industry has taken no small part in these applications, and has practiced standardization within its own ranks in the actual production of the product it sells, as well as in connection with the appliances in which the customer utilizes that product. From its inception, more than a century and a quarter ago, the gas industry has functioned according to specifications or standards, many of which were originally self-imposed. Later they were incorporated into the requirements and regulations of state and municipal authorities as they were created by the respective legislatures and councils.

It early became apparent that as more and more industries applied standardization to their manufacturing and selling problems, some kind of a national clearing house was essential. To meet this need the American Engineering Standards Committee was organized in 1918 and for more complete details the reader is referred to the 1927 Year Book published by the A.E.S.C. at 29 West 39th Street, New York City. From it we learn that the Committee now has under way 238 projects and has approved 103 standards. The American Gas Association has been actively engaged as a "sponsor" in "Specifications for Cast Iron Pipe and Special Castings" (A21), "Pipe Thread" (B2) and "Gas Safety Code" (K2). In addition, by means of committee and special representation the Association has taken an active part in the following projects:

A 11—Code of Lighting Factories, Mills and other Work Places
A 13—Safety Code for Identification of Piping Systems
A 23—Code for Lighting of School Buildings
A 35—Manhole, Frames and Covers
B 9—Safety Code for Mechanical Refrigeration
B 16—Pipe Flanges and Fittings
B 31—Safety Code for High-Pressure Piping
C 2—Electrical Safety Code
C 5—Code on Protection against Lightning
Z 4—Safety Code for Industrial Sanitation
Z 7—Illuminating Engineering, Nomenclature and Photometric Standards

Z 11—Methods of Testing Petroleum Products and Lubricants

The American Gas Association is also represented on the Safety Code Correlating Committee.

Secretary of Commerce Hoover has several Bureaus actively participating and there are in all 35 branches of the U. S. Government officially represented. Such a union of industry, national, and state government on a common meeting ground cannot fail to develop the best of service, not only to the active participants, but to the country at large.

Within the gas industry itself standardization has been actively undertaken and strong representative committees have prepared specifications and approval requirements for gas ranges, gas water heaters, flexible tubing, space heaters, etc., which are recognized as standards by manufacturers, operators, the public and the purchasing agents.

Domestic appliances are subjected to searching examination and performance tests at the A. G. A. Testing Laboratory, and they must comply with the specifications. If they are approved they are awarded and bear the Blue Star Seal.

From the specifications to the manufacturer, and from the manufacturer to the laboratory, the appliance travels in search of the industrial hall mark of the gas industry—a blue star. Then to the home, where, in the company of a specified number of other blue star, and therefore approved, appliances is created the Blue Star or Standard Home.

In the application of gas to water heating, circulating heaters are attached to storage tanks where there was formerly a woeful lack of uniformity, necessitating

(Continued on page 632)

Unusual photograph of gas works at Spring Gardens, Consolidated Gas Electric Light and Power Co. of Baltimore, Md., taken by company's photographic division

Allied Trades Cooperation Bears Fruit

The Gas Industry Profits When It Works Closely with Those in Other Trades and Businesses

THAT the efforts of the American Gas Association to achieve closer cooperation with the allied trades are bearing fruit is evident from the action taken at the recent annual convention of the Heating and Piping Contractors National Association, at West Baden Springs, Ind. This was briefly described in the August issue of the MONTHLY, but further details are necessary to show accurately the extent of the benefits accruing from such cooperation.

Members of the Association are already aware of the resolutions passed by the National Association of Master Plumbers at their Minneapolis convention, when they went on record as favoring additional side tappings for range boilers. This resolution will aid the gas industry materially in presenting the matter to the range boiler committee, Division of Simplified Pratice, Department of Commerce, at a meeting in September to consider these tappings. Other manifestations of the benefits from cooperation have also been brought to members' attention from time to time.

H. Leigh Whitelaw, vice-president American Gas Products Corp., represented the A. G. A. at the West Baden meeting of the Heating and Piping Contractors' Association, and reports that the cooperation of this body with the gas industry will result in mutual benefits.

The committee on standardization of the Association reported that a representative of the American Gas Association had explained the plans of the A. G. A. for testing gas-fired boilers at the Testing Laboratory in Cleveland. The committee was heartily in favor of this plan and promised cooperation in going over the testing code and in acquainting members with the results of tests.

During the past year there have been more than the usual number of conferences with representatives of other associations on matters of mutual interest, one of which was with the American Gas Association on matters of exploiting gas-fired boilers for heating and the marketing of gas-fired products.

Mr. Whitelaw read an address written by A. B. Macbeth, President of the A. G. A.

The report of the Committee on Trade Relations was read, materially as follows:

"At the suggestion of President Hart, dated April 14, 1927, accompanied by letters from H. Leigh Whitelaw, dated April 6, 1927, representing the American Gas Association, the Chairman of your Committee on Trade Relations called together a sub-committee consisting of George M. Getschow (former president of our ass'n) and your Committee on Trade Relations Chairman, representing the Heating and Piping Contractors National Association; J. E. Davies of The Peoples Gas Light & Coke Company, of Chicago and H. Leigh Whitelaw, representing the American Gas Association. This sub-committee met in Chicago, May 23 and 24, 1927, and the following is a report and recommendation of our side of the Committee as the result of the deliberations on the subject of gas-fired heating appliances.

"There is nothing coming before our convention this year that is more important than our trade relations with the manufactured gas industry. In the last few years the gas industry has realized that its greatest potential market is in the house heating field, as evidenced by the fact that there are only two or three large companies in the United States who have not yet made special rates for house heating.

"In order to properly set up the magnitude of this program, it is only necessary to say that all fuels, with the exception of gas, have steadily increased in price for the last one hundred years; this does not indicate that gas will very shortly be on a competitive basis with solid fuels, but the cost spread today has been so reduced as to place gas within the reach of a very large proportion of home owners.

"Gas boiler sales in 1927 will exceed the total number of gas boilers sold during the past fifteen years. We have reached a point where we must recognize not only the potential market represented by practically every gas boiler installation in the country, which is the biggest market that has ever confronted us, but also an issue vitally important from our point of view and that is the question of trade protection. We are in the possible position today of forcing the gas industry into the heating contracting business, but fortunately, the breadth of vision of J. E. Davies, of The Peoples Gas Light & Coke Company, of Chicago, and George M. Getschow in setting up two or three years ago a cooperative relationship between The Peoples Gas Company of Chicago and our local association at Chicago on the sale and installation of gas-fired boilers, has set an example in policy that has not only proven highly successful, but has been adopted by almost all manufacturing gas companies that are engaged in promoting the sale of gas for heating, and adopted by many other utility companies, including New York, Boston, etc.

"It will readily be appreciated from the foregoing that the members of this Association have a serious duty to perform in protecting this relationship and to that end a committee on trade relations has been formed, composed of two members of the American Gas Association and two members of our Association. In order to set up the functions and the relationship of a gas company and each local association, the controlling factors that govern are herewith set forth.

FACTORS CONTROLLING THE GAS COMPANY

"The responsibility of the public utility toward the ultimate consumer represents a responsibility that neither can be shirked nor evaded and this responsibility not only protects us, and protects our profit in the sale, but also protects the ultimate consumer.

"1. The gas company completely controls all factors governing the installation of a gas-fired boiler, such as survey of the job before the installation is made to determine if radiation is sufficient and if the right sized boiler is selected.

"2. Location of job. Protecting the gas company against the installation being made where street main capacity is insufficient to handle it satisfactorily.

"3. Correct estimates of fuel consumption, protecting the gas company against high bill complaints and loss of good will. The elimination of exaggeration in selling a high-class fuel against any other fuel.

"4. Control as outlined above insures maximum protection to the gas company, heating contractor and owner, and provides the gas company with unusual powers to enforce our heating standards.

FOR THE OWNER

"1. The owner is assured of the selection of the right sized boiler to handle a given load under the supervision of the gas company, which company is primarily interested in the successful operation of the plant in every way.

"2. The owner will be able to enjoy this wonderful heating service due to the supervision of the gas company, which will prevent the installation of insufficient radiation and insufficient boiler capacity.

"3. The owner or architect is assured of receiving a heating service, which up to the present time is practically unknown in the heating industry.

FOR OUR ASSOCIATION

"Most important of all are the benefits that we derive from such a policy, as outlined above, such as the following:

"1. We are protected against unfair competition.

"2. Our profit on the boiler is assured as the gas company quotes consumers list prices only.

"3. We are relieved of service and call-backs such as we have with all other types of heating equipment and for which we can make no charge.

"It will be appreciated from the above, that the gas company, acting as a jobber of gas-fired boilers, extends a service to us and through us to the owner, that is unknown in our business and cannot be provided by any other agency. From a selfish point of view, such service must be rendered if the gas company expects to continue in business; and because this new field of activity possibly represents the biggest market that has ever been open to us, it is essential, from our selfish point of view, that our local associations bring about a relationship with their local gas company which will not only protect us, but which will also show us how to broaden this market for our mutual benefit. In other words, this not only affords us an opportunity for trade protection, but also affords us an opportunity of developing this new field and increasing our business.

AMERICAN GAS ASSOCIATION LABORATORY

"In conjunction with the Bureau of Mines and Bureau of Standards of the United States, the American Gas Association organ-

ized and equipped a testing laboratory for the testing of appliances and for the development of proper standards. There was a vital need for this laboratory not only for the protection of the ultimate consumer or user of gas appliances, but it also offers a protection for our organization, because boilers tested according to the American Gas Association test rating code can be accepted by us. As no manufacturer's rating formula is involved, boilers so tested and rated have been accepted by our local association in Chicago.

"1. In summing up, we must recognize that the American public is ever demanding and is willing to pay for comfortable homes, free from drudgery and dirt, and gas represents the only perpetual heating service that can be purchased today.

"2. Our local associations should endeavor to bring about a trade relation with their local gas company that has been endorsed by our National Association and by the American Gas Association.

"3. That the endorsement of the American Gas Association Laboratory, which your subcommittee believes was done at our last annual meeting, offers us a protection that we cannot very well ignore.

"4. That gas for heating is already developed to such a stage that it is no longer confined to house heating, but includes buildings of all kinds, of any size."

The subject was then taken up for discussion and several of the members gave their experiences with this type of heating apparatus.

S. A. Jellett, of Philadelphia, said that he had heated homes with both gas and electricity, but considered gas the better because it could be used with the simplest equipment of any fuel. The price of gas (1 per thousand cu.ft., of which the city gets ten per cent) is what is holding back gas heating in that city.

One member stated that he had difficulty in getting a fuel consumption estimate on his own home. Mr. Whitelaw remarked that this was the first time he had ever heard of a gas company that would not give a fuel consumption estimate, as that is the company's protection against complaints and is the only way they can sell gas house heating.

P. E. Fansler, of New York, told of a nation-wide survey made by the *Heating and Ventilating Magazine* to determine how far the average man who has used an oil burner for the last three years would go before he would return to coal, which showed that the home owner would pay from 25 per cent to 200 per cent more for oil fuel. The average was about 100 per cent. This would make it look as though the price of gas was not the controlling factor.

J. E. Rutzler, of New York, told of the loss of business to the heating contractor through the use of street steam in the larger cities. He said that if through the cooperation of various trade associations with the American Gas Association the use of gas in large installations could be encouraged, it would increase the heating contractor's business through the installation of these gas boilers. Furthermore, it would encourage boiler manufacturers in the manufacture of boiler for gas fuel and give their cooperation. This too depends on getting down the cost of gas. The question should be taken up by the

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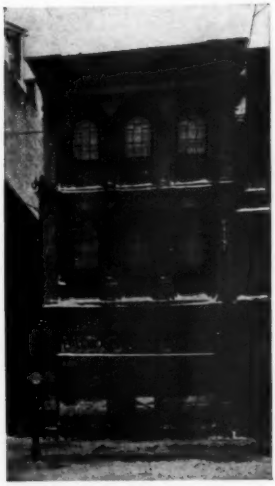
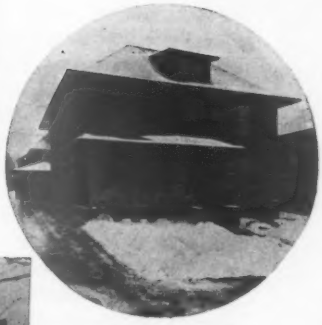
The Blue Star Arrives!
TESTING LABORATORY
APPROVED
New Roper Ranges
—Now displayed on our floor have passed the tests of A. G. A. laboratory.
Many practical improvements have been built into these new ranges.
Your Gas Company confines its sales of gas ranges and space heaters to those bearing the Blue Star Seal of the Testing Laboratory of the American Gas Association.
This seal is your guarantee that the appliance confines to high standards of safety, efficiency and durability established by the Specialists of the U. S. Bureau of Mines, U. S. Public Health Service, U. S. Bureau of Standards and the American Gas Association.
Roper Is a Blue Star Range
Trade in Your Old Range Now
10% for your old stove; 12 months to pay; no interest
Demand gas appliances bearing this Blue Star seal
SOUTHERN COUNTIES GAS COMPANY

Laboratory approved appliances will help develop allied trades cooperation



"Whoever passes this way was sure a warm house was waiting," is the title of a well-illustrated and attractively prepared booklet recently published by the Worcester Gas Light Co., Worcester, Mass. Whoever reads the book will install a gas boiler immediately.

These illustrations are taken from the booklet.



Homes in Worcester, Mass. That Are Heated with Gas

Alpha-Lobelin

(Continued from page 597)

over one hundred animals (cats and rabbits).

Carbon monoxide poisoning was produced in cats by inhalation of a mixture of illuminating gas (CO, 20 per cent) and air in a proportion of 300:10,000 from a spirometer through a tracheal cannula with a double valve. It took usually about fifteen to thirty minutes for the effect of the poisoning to become evident by slow, large respiratory movements and gradual fall in the blood pressure. The administration of the carbon monoxide was stopped either about one or two minutes before, or simultaneously with the administration of the stimulants. The severity of the poisoning was such that the animal had an almost immediate tendency to improve as to the blood pressure and ventilation spontaneously. The reduction of the ventilation and of the rate of respiration varied. The ventilation was half to one-fourth of that previous to the administration of the gas. The fall of the respiratory rate was more marked than that of the ventilation. In twelve intravenous administrations of alpha-lobelin in doses 0.5 to 1 mgm. in six cats, there was a suggestion of stimulation due to lobelin in two experiments only. The stimulation lasted for three minutes. In two instances after carbon monoxide had reduced the ventilation to a degree from which the control animals recovered spontaneously, 1 mgm. per kilogram of the drug was followed by death within one to two minutes. It is probable that the death was indirectly due to lobelin, the latter exerting a synergistic action on the respiratory depression, and so on the reduced blood pressure (44 and 90 mm. Hg respectively at the time of injection). In the other experiments there was no appreciable effect. Carbon dioxide 10 per cent and oxygen mixture produced stimulation of the respiration at times when lobelin failed.

We feel that the severity of the intoxication of these animals corresponded to those in man with moderately severe carbon monoxide poisoning, where life may be in danger and therefore immediate interference is indicated.

The two experiments where death followed the administration of the drug suggest again that the ventilation alone is not necessarily a measure of the state of the medullary centers, and that there is a potential danger in the administration of lobelin and, perhaps, other medullary stimulants in case of medullary depression.

OBSERVATIONS ON MAN

Our observations on animals showed that normal animals are more sensitive to the stimulating effect of alpha-lobelin than those with respiratory depression. It was also shown that when the respiration is depressed other functions related to the medullary centers are also disturbed and the effect of the drug may be altered.

Observations were made on 21 men including the authors. Several of these observations on man were made before the animal experiments, reported above. The drug was administered to patients from whom permission was obtained, and several of whom suffered from incurable diseases. After pneumographic tracings had been made for comparison and the blood pressure and pulse had been obtained repeatedly, 10 to 20 mgm. of the drug were injected subcutaneously or intramuscularly, and the respiration, blood pressure, pulse and general behavior of the patient were studied. Continuous tracings were obtained for forty-five to sixty minutes following the administration of the drug. On four normal men the administration of 10 mgm. of the drug subcutaneously produced no change either in the ventilation or in the general condition of the patient. In one individual (S. W.) there was slight nausea with repeated belching twenty minutes after the drug was administered. In one man, in whom 10 mgm. of the drug produced no effect, 20 mgm. of the drug injected intramuscularly four days after the first dose, produced slight stimulation of the

(Continued on page 635)

Laboratory Develops New Method for Testing the Efficiency of Warm Air Furnaces

By GEORGE B. SHAWN
A. G. A. Testing Laboratory, Cleveland, Ohio

G. B. Shawn

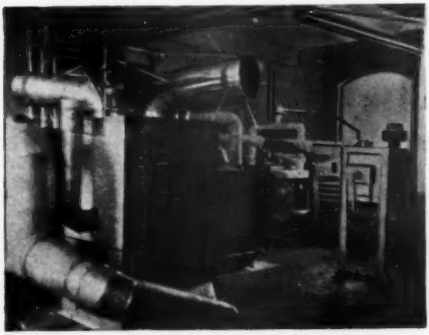
SINCE the Testing Laboratory began making approval tests on gas-fired warm air furnaces, a great deal of interest has been developed in the method of efficiency test employed. There has been little coordination among the various test methods used in the past and as a result no laboratory has been willing to accept, at their face value, the results of tests made by other laboratories. Disagreement on the method of heat output measurement has been the greatest cause of difference. The chief interest in the efficiency tests made at the Laboratory centers on this measurement.

Accurate measurement of the heat output of warm air furnaces has been so difficult to accomplish that the efficiency is often calculated by subtracting from the heat content of the gas the actual heat lost in the stack. The acceptance of this method is based on the assumption that all heat taken away from the jacket of the furnace by radiation and convection is useful heat, since it serves to warm the atmosphere immediately around the furnace and, to some extent, that of the building above. This view has often been held by the makers in their own measurements of efficiency. Most gas company laboratories, however, insist that radiated and convected heat should not be credited to the furnace and they determine the heat output by direct measurement. This measurement is usually attempted by means of an anemometer or Pitot tube and gauge. While these methods are fundamentally correct, many inaccuracies are bound to creep in. Anemometers cannot be called accurate unless a careful standardization is made before each test; the Pitot tube may be used with confidence only in the hands of a careful experimenter.

During the past few years a large amount of research work on warm air furnaces has been carried on at the University of Illinois under the direction of Professor A. C. Willard. The progress reports on this work, Bulletins 112, 117, 120, and 141 of the Engineering Experi-

Efficiency test set-up—hot air furnace

Efficiency test—checking two air meters



Routine testing warm air furnace

ment Station, are an extremely valuable contribution to our knowledge of the subject. The method of measurement employed by Professor Willard and his associates for the determination of velocities in air ducts depends upon the accuracy of the anemometer or Pitot tubes. They discovered that an anemometer could be used with good accuracy provided a calibration was made with air under conditions practically identical with those of the furnace test. A very delicate differential gauge was developed to secure the desired accuracy with Pitot tubes. Having made these advances, they were able to pursue their investigation with great success.

While the methods used by the University of Illinois are undoubtedly productive of invaluable results when applied to research, they are too slow and require too much precise manipulation in handling to be practical for the large number of routine approval tests which must be made at the A. G. A. Testing Laboratory. In order to carry on our work with the desired rapidity, it was necessary to develop a new method of heat output measurement. Since the hot air leaders were restricted to a length of two feet, in order to reduce the space required for a set-up, the use of Pitot tubes was out of the question. No means could be determined for metering the air without obstructing its flow, either at the inlet or outlet of ducts. Consequently it was decided that the measurement should be indirect.

The procedure is as follows: The gas is adjusted at the hourly B.t.u. input specified by the maker of the furnace and allowed to burn at a constant line pressure until the temperature of the air leaving the furnace has become constant. This temperature and that of the inlet are noted down and the temperature rise of the air while passing through the furnace is found. During this part of the test the cold air inlets of the furnace are left unobstructed. The temperature measurements in each hot air duct are made by five thermocouples connected in parallel and placed in a potentiometer circuit which is balanced by a galvanometer of sufficient sensitivity to give an accuracy of about 1°F. This arrangement results in an average temperature reading of the air flowing through the duct. The next step is to connect all the inlets to a single pipe which is connected in turn to a metering device and fan blower. This blower is operated by a variable speed motor which can be operated over a wide range of speeds. After the connections have been completed the gas is again lighted, the pressure and gas rate being the same as during the first part of the test. The fan is put into operation and the speed of the motor adjusted to a point which will give a temperature rise of the air identical with that previously obtained. Since the gas rate and temperature rise are the same in the two cases, the amount of air must be the same, as the efficiency of the furnace remains constant. The hourly heat output from the furnace is calculated by multiplying the rate of gas flow in pounds per hour by the specific heat and temperature rise. Efficiencies are calculated as a percentage of the hourly gross heat input of the gas.

In the above method, the metering device could be replaced by a Pitot tube which would be made sensitive by the use of a small pipe. However, the Labo-

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Noteworthy Advances Made in Utility Law

Progress Made and to Be Made by Section on Public Utility Law of American Bar Association

By CHARLES S. WHITMAN
President, American Bar Association

THE past year has been one of noteworthy advance in the clarification of that newer body of the law which determines the rights and the obligations of the owners of the private property devoted to public use, through the corporations performing basic services of power, light, heat, communication, transportation and water supply. Members of the Section on Public Utility Law have taken a conspicuous part in the litigation which has resulted in decisions of far-reaching importance. The development of this branch of the law has been along lines which have been discussed and advocated in notable papers and addresses before the Section, for several years last past.

The Section itself has continued to serve as the common and friendly meeting place for all members of the Bar engaged in this branch of the law. It constitutes virtually the only assembly of representatives alike of the public utility and railroad corporations and of the various Federal, State and Municipal regulatory authorities. If the Section served no other purpose than to bring together these representatives of public regulation and private interest, under congenial circumstances which make for better mutual understanding, the Section would be well worth while. It also helps the legal representatives of each branch of the public utility industry better to understand the problems and conditions confronting every other branch, and thus to envisage in nation-wide aspect the development of public utility law.

During the past year, representatives of the Section have worked in close cooperation with members of the National Conference of Commissioners on Uniform State Laws, in perfecting a draft of a model Uniform Public Utilities Law, which may prove helpful to State executives and legislatures in the improvement of regulatory statutes.

In the further development of the law affecting public utilities, momentous problems press for early solution. They demand legal statesmanship of the highest order. The determination soon to be made as to the bases of valuing railroad property, for purposes of rate-making and consolidations, will profoundly affect the economic life of the Nation. The rulings of the Massachusetts Department of Public Utilities and the recent writings of Ex-Governor Pinchot make a sharp challenge of the decisions of the United States Supreme Court and seek an overturn of those decisions by legislative process or judicial fiat. The development of public utility enterprises into great units, which overrun State boundaries and transmute into interstate commerce what had hitherto been only local service, has brought an imperative need for new formulae of legislation, in order to keep in the hands of State authority plenary power over rates and all concerns which may best be dealt with by State Commissions rather than any centralized federal agency.

These are but typical of the tasks which are ahead in this branch of the law. Perhaps it is inherent in the controversial character of these questions and the supposedly sharp conflict of interests which they involve, that the Section on Public Utility Law must remain primarily a forum for free discussion, rather than undertake any organized advocacy of this or that position or measure. I am hopeful, however, that the Section may prove even a more potent factor in the sound development of the law in its field.

Abstract of address made at meeting of The American Bar Association, Buffalo, N. Y., Aug. 31, 1927.

TIDE OF MEN AND AFFAIRS

Lewis Lillie of U. G. I., Dies in Haverford Home

Lewis Lillie

LEWIS LILLIE, a vice-president of The United Gas Improvement Company, and one of Philadelphia's ablest financiers, died August 27, at his home in Haverford, Pa. He was in ill health since May, 1924, when he suffered a stroke. Prior to that time, in addition to his duties in The U. G. I. Company, he was an important factor in the management of the Public Service Corporation of New Jersey, as a director, of the Connecticut Light and Power Company, and of the Counties Gas and Electric Company, of which he was President.

Mr. Lillie was born October 13, 1863, in Troy, N. Y.

Mr. Lillie was educated in the public schools at Troy. At 16 he began his business career in New York City as a clerk in the legal department of the Northern Pacific Railroad Company. In 1887 he became auditor of The United Gas Improvement Company. In 1893 he was promoted to the office of assistant treasurer of the U. G. I., and in 1894 he became comptroller of the company. In 1900 Mr. Lillie was elected secretary and treasurer of the U. G. I. He was elected a vice-president in 1905 and in 1918, still retaining his vice-presidency, he was elected general manager. On May 3, 1926 he resigned as general manager on account of ill health.

Mr. Lillie was a director of the Franklin Fourth Street National Bank, the Guaranty Company of North America, the Welsbach Company, and of various local enterprises. He was a member of the Capital Issues Committee, created under the War Finance Corporation Act, which had charge during the World War of all capital issues made in Federal Reserve District No. 3.

Mr. Lillie was a member of the New England Society of Penna., the Historical Society of Penna., Franklin Institute and the Penna. Society of the Order of the Founders and Patriots of America.

THOMAS G. STOREY, who has been with the Toledo Edison Company, Toledo, Ohio, has resigned to join the Citizens Gas Fuel Company, Adrian, Mich.

WILLIAM G. FURLONG has resigned as vice-president and manager of the Municipal Gas Company of Albany, a subsidiary of the Mohawk-Hudson Power Corporation. Mr. Furlong has served the company for 23 years, affiliating himself with the concern as secretary to the late Anthony N. Brady. He has served as a member of the board of education of Albany and has been a director of the Chamber of Commerce for several years. His resignation became effective Sept. 1.

JOHN C. D. CLARK has accepted a position as manager of the United Merchandising Company with headquarters at 100 West Monroe Street, Chicago, Illinois.

The United Merchandising Company are jobbers', distributors', and manufacturers' agents.

G. W. KELLER, formerly assistant sales manager for the National Refrigerating Company, has been made sales manager under F. H. Knapp, vice-president.

GEORGE M. PARKER, secretary of the Parker-Russell Mining and Manufacturing Company, St. Louis, Mo., has accepted a position with the Interstate Power Company, subsidiary of the Utilities Power and Light Corp., to manage one of their gas properties. Mr. Parker took up his new duties Aug. 15.

W. G. VON GEMMINGEN, gas engineer for Ford, Bacon and Davis, Inc., of New York, N. Y., is now connected with G. E. Barrett and Company, also of New York.

A. G. PATTERSON, president of the Alabama Public Service Commission for the past seven years, has tendered his resignation to Governor Graves and on Wednesday, Aug. 24, became probate judge of Morgan County, Ala., the county seat of which is Decatur. The outstanding achievement of Mr. Patterson was his complete reorganization of the commission and its methods soon after he was made president in 1920.

That Mr. Patterson's work received due acknowledgment is shown in his election as president of the National Association of Railroad and Utilities Commissioners in the fall of 1925. The service he rendered this national association has been substantial in solving utility problems and in setting up the necessary machinery to secure efficiency of regulation and fairness in administration.

Miss Spear Joins A. G. A.

MISS MARY SPEAR, who has been connected with the headquarters staff of the Natural Gas Association of America for the past ten years, is now in New York City in the Natural Gas Department of the American Gas Association.

Miss Spear's decision to join the A. G. A. staff was especially welcomed by Alexander Forward, managing director, and N. C. McGowen, chairman of the Natural Gas Department.

A. F. HOCKENBEAMER, for many years second vice-president and treasurer of the Pacific Gas and Electric Co., San Francisco, Cal., has been elected president of the company to succeed the late Wigginton E. Creed.

He has been vice-president, treasurer and a director of the company for almost 20 years. He is 56 years of age.

Perhaps the most outstanding achievement of the company's new president was his initiation in June, 1914, of the policy of customer ownership of utilities, which has since been adopted by the majority of utility companies in America.

The following additional changes have been made in the company's official roster:

Charles H. Dickey was elected a director to succeed the late Mr. Creed. Mr. Dickey is a large stockholder in the company, and has for many years been identified with public utilities. He was for 20 years a director of the Consolidated Gas and Electric Company of Baltimore; for a period vice-president and director of the Kings County Gas Company of Brooklyn, N. Y., and is at present vice-president and director of the Southern Counties Gas Company of Los Angeles, and director of the Pacific Lighting Corporation, San Francisco. He has for several years been a resident of California, and makes his home in San Francisco.

John P. Coghlan was elected second vice-president. Mr. Coghlan has been an employee of the company for 21 years, beginning his service in the law department, and for the past five years has been assistant to the president.

D. H. Foote, third vice-president and secretary of the company, was elected treasurer of the organization, assuming the office formerly held by Mr. Hockenbeamer.

E. W. Hodges was elected comptroller in charge of the company's accounting, tax and insurance departments. Mr. Hodges has been with the company for 11 years and steps upward from the position of general auditor.

HAROLD G. BREHME, associated with the Haverhill Gas Light Company, Haverhill, Mass., for the past two years, has been transferred to the Lowell Gas Light Co., Lowell, Mass.

F. L. BALL, an officer of several of the light and power companies under the management of Charles H. Tenney & Company, Boston, has been elected a vice-president of that holding company and vice-president of the Exeter & Hampton Electric Company. Mr. Ball's recent election marks the latest recognition of his long, and valuable career with the Tenney interests, dating back to 1901. During that period of service, his work has included almost every branch of operation and management, accounting, purchasing, production and sales. Mr. Ball made a special study of safety engineering and resuscitation with such exceptional results that he has been in charge of safety work in all Tenney companies for several years.

Mr. Ball entered the employ of Charles H. Tenney & Company as a boy in 1901. At the age of 26 he was appointed manager of the Haverhill Electric Company. Upon his return from military service he was assigned to the Fitchburg Gas & Electric Light Company in the capacity of manager and last year was promoted to a vice-presidency, in addition assuming similar executive duties with the Montpelier & Barre Light & Power Company. Mr. Ball has been active for many years in the Fitchburg Chamber of Commerce.

GROVER CLEVELAND POUST, who has been with the Kansas City Gas Company, Kansas City, Mo., as industrial fuel engineer and salesman, is now with the Pittsburg Gas Company, Pittsburg, Kansas.

ALAN E. LOCKWOOD, assistant gas engineer, United Gas and Electric Engineering Corp., New York, N. Y., has accepted the position of gas engineer for Stevens and Wood, Inc., of New York.

THE NAME of the Freeport Gas Company, Freeport, Ill., has been changed to the Illinois Public Utility Company.

THE WESTERN OKLAHOMA GAS AND FUEL COMPANY, Duncan, Okla., is now the Southwestern Light and Power Company.

HENRY OBEYMEYER, assistant to the vice-president, Consolidated Gas Company of New York, N. Y., recently addressed the Kiwanis Club of Watertown, N. Y., on "Why Be Ashamed of Your Business?"

A GENERAL sales department of the Philadelphia Company having been created by combining the commercial departments of the Duquesne Light Company, the Equitable Gas Company, together with the Equitable Sales Company, which operates the Gas and Elec-

tric Shops in Pittsburgh, a number of important changes in positions were made recently. The new department, which is headed by George E. Whitwell as general sales manager, is composed of five divisions, power and steam sales, industrial and commerical heating sales, sales engineering, retail sales, and rate.

Joseph McKinley heads the power and steam sales division and in the absence of the general sales manager acts in his stead.

Robert E. Polk heads the industrial and commercial heating sales division which sells gas and electric service and appliances to industrial and commercial establishments where such service or appliance is used for heating purposes.

H. P. Smith becomes director of the rate division, the duties of which are to analyze cost of service and design profitable rates.

The retail sales division is divided into four parts with Harvey A. Keys as vice-president and general manager of the Equitable Sales Company, which operates the Gas and Electric Shops. H. Levine is made manager of city retail sales; Felix H. Stone, manager of suburban retail sales and Miss Karen J. Fladoes, home service director.

G. W. Ousler is director of the sales engineering division.

One of the important features of the reorganization is the formation of an executive sales committee composed of five directors and the assistant to the general sales manager who is E. J. Stephany. The function of this committee is to coordinate all new business of the department. Mr. McKinley is chairman of this committee.

ARTHUR W. THOMPSON, president of the Philadelphia Suburban-Counties Gas and Electric Company, has announced the election of H. H. Ganser of Norristown as general manager of that company, and the appointment of H. B. Bryans, Norristown, as general superintendent in immediate charge of all engineering and gas and electric operations, and J. W. Heins, Philadelphia, as auditor in charge of all accounting. The operating headquarters of the company will be moved at once from Philadelphia to Norristown.

The Philadelphia Suburban-Counties Gas and Electric Company's territory embraces approximately fourteen hundred square miles in Montgomery, Chester, Delaware and Bucks Counties and includes a population of over 600,000.

Mr. Ganser had been a vice-president of the company in charge of the Schuylkill division, which office he retains. He is one of the best known public utility men in the East, having been in the business for nearly thirty years, beginning as a clerk with the old Norristown Electric Company and advancing through practically all jobs in the business to his present position. He is vice-president of the Montgomery Trust Company and of the Valley Forge Hotel Company, Norristown.

Mr. Bryans, who is well known in engineering circles, had been engineer of the Schuylkill division prior to his appointment as general superintendent. He is a graduate of the University of Pennsylvania and has been in the gas and electric business since 1907, when he started as a cadet engineer with The United Gas Improvement Company in Philadelphia.

Mr. Heins has had a broad experience in utility accounting work, as a traveling auditor for U. G. I. and as assistant general agent of the Philadelphia Gas Works, which latter position he left to go to Norristown. He is active in affairs of the American Gas Association, having served as chairman of the Accounting Section.

Besides the Schuylkill division, the company now has four divisions, namely, Main Line, John L. Mather, manager, headquarters at Ardmore and Wayne; Western division, W. O. Lamson, Jr., manager, headquarters at West Chester and Coatesville; Delaware division, J. D. Shattuck, manager and W. G. Sterrett, assistant manager, Chester; Eastern division, W. E. Herring, manager, Jenkintown and N. B. Bertolette, manager at Bristol. W. C. Rivenburg is manager of the Phoenixville-Pottstown district, which is a part of the Schuylkill division.

"Local divisions will operate as units as heretofore, except the local managers will report to Mr. Ganser," Mr. Thompson stated.

F. H. Knapp

FRANK H. KNAPP has joined the executive organization of the National Refrigerating Company, affiliated with Winchester Repeating Arms Company, of New Haven, Conn., as vice-president. He recently resigned as vice-president of the Standard Gas Equipment Corp., of New York.

In 1916 Mr. Knapp joined the Pittsburgh Water Heater Company as general manager. In 1918 he was made vice-president and in 1920 president. He has been a director of the American Gas Association, and was also president of The Gas Manufacturers' Exchange for three years.

Affiliated Association Activities

Pacific Coast Gas Association

L. M. Klauber

THE following officers were elected at the highly successful and well-attended 34th Annual Convention of the Pacific Coast Gas Association held in Santa Cruz, California, September 12 to 16: L. M. Klauber, San Diego Consolidated Gas and Electric Company, president; C. H. Dickey, Pacific Gas & Electric Company, vice-president; and D. G. Martin, Pacific Gas and Electric Company, treasurer.

The following new directors were elected: Norman R. McKee, Southern Counties Gas Company; C. R. Miller, Portland Gas and Coke Company; M. F. Wales, Coast Counties Gas & Electric Company, and R. E. Fisher, Pacific Gas & Electric Company.

W. S. Yard, immediate past president, automatically became a member of the board of directors, and the following directors will serve a second year: W. C. Hornberger, Central Arizona Light & Power Company; O. L. Moore, Los Angeles Gas & Electric Corp.; C. W. Platt, Portland Gas & Coke Company, and W. Van Zandt, C. B. Babcock Company.

Wisconsin Utilities Association

MERCHANDISING and advertising will occupy the center of the platform at the convention of the Commercial Section to be held at the Hotel Pfister in Milwaukee, Wisconsin, on November 17 and 18. Fred E. Eriksen of the Milwaukee Electric Railway and Light Co., chairman of the Advertising Committee, is preparing a display of good and poor advertising and is to present a constructive report for his committee; John F. Martin of the Lake Superior District Power Co., chairman of the Committee on Cooperation with Dealers will speak regarding the work of his committee; Jerome J. Feeney of the Madison Gas & Electric Company will discuss "Customer Relations"; A. A. Schuetz, Milwaukee Gas Light Co., will discuss problems of construction and contractor in connection with house heating by gas; W. R. Lacey of the Home Incinerator Co., will speak on "Gas Merchandising Problems and Progress"; O. J. Kruse, Milwaukee Electric Railway and Light Co., will discuss lighting progress and E. M. Miller, Wisconsin Public Service Corp., will discuss "Electric Merchandising Problems."

The speaker at the banquet on November 17 will be R. F. Pack, past president of the N.E.L.A. and vice-president and general manager of the Northern States Power Co.

The Home Service Committee is preparing an interesting and extensive presentation: The Chairman, Mrs. Vera Ellwood, Milwaukee Electric Railway and Light Co., will speak on "Home Lighting"; Miss Alice Renlschler, Madison Gas and Electric Co., will report on recent developments in research and data of value to the home service department; Mrs. Ella Lambert, Milwaukee Gas Light Co., will dramatize a home service scene showing some of the situations which are met in this work; and Miss Arline Halblieb, Northern States Power Co., will relate the results of a very successful range-selling campaign recently conducted in which the women employees played a most important part.

Program and convention arrangements are in charge of a committee consisting of Chairman M. S. Bandoli of the Northern States Power Co., F. A. Coffin of the Milwaukee Electric Railway & Light Co., Executive Secretary J. N. Cadby and the chairmen of the several commercial committees.

Chairman A. A. Schuetz of the Gas Section has appointed the following committees with the approval of the Excutive Committee:

Distribution Committee: W. H. Kernen, of the Milwaukee Gas Light Company, chairman; Gas Fellowship Committee, George E. Wagner, of the Madison Gas and Electric Company, chairman; Industrial Gas and House Heating Committee, G. H. Head, of the Wisconsin Gas and Electric Company, chairman; Bituminous Coal for Water Gas Manufacture Committee, E. H. Cotton, of the Northern States Power Company, chairman; Dehydration of Gas Committee, Louis Stein, of the Northern States Power Company, chairman; and a Coke Committee with John P. Mertes, of the Wisconsin Power and Light Company, as chairman.

Empire State Gas & Electric Association

THE annual convention will be held at the Lake Placid Club, Lake Placid, N. Y., October 6 and 7, with headquarters at the Lakeside Club House. Further details, including the program, are printed in the September MONTHLY.

New England Gas Association

THIS Association has appointed a committee, consisting of one representative gas man from each of the New England States, to foster public speaking on the subject of the gas industry. The State representatives are chairmen of committees in their own states. The fact that F. A. Woodhead, manager of the Arlington Gas Light Co., heads the main committee is assurance of good results.

Report A. G. A.'s Work in Fire Prevention to Ass'n

R. B. Harper

AT the thirty-first annual meeting of the National Fire Protection Association, held at Chicago recently, R. B. Harper, of The Peoples Gas Light and Coke Company, represented the American Gas Association and explained the work of the A. G. A. in fire prevention. An abstract of Mr. Harper's remarks are given here:

"Through the activities of its laboratory, the American Gas Association is making every effort to safeguard its customers from appliances which in their operation may create a fire hazard. The laboratory uses in its tests, approval standards that have been drawn up by committees of the American Gas Association which include representatives of the U. S. Bureau of Mines, U. S. Bureau of Standards, U. S. Public Health Service, and U. S. Master Plumbers' Association. Test standards have been completed for flexible gas tubing, gas ranges and space heaters, and approval tests are now being made on appliances of these types. Standards for the examination of water heaters and house heating appliances are practically complete and will shortly be accepted by the gas industry and tests of such appliances will follow without delay. Fire hazard tests are included in all of the appliance approval requirements.

"Fire hazard tests are made by placing the appliance in an enclosure formed by two walls made of well dried wood about one inch in thickness with thermometers placed at six-inch intervals in both the vertical and horizontal planes. Each appliance undergoing test is located with its back and one end exactly six inches from the walls and operated at what is known as the maximum test pressure for a period of one hour. With gas ranges the maximum test pressure represents 25% above normal or 5½" for manufactured gas and 8¾" for natural gas. Thermometers are also placed on the floor beneath the range and readings taken in such position. Under these conditions an increase in temperature of not over 90° F. above room temperature represents the allowable limit. Considering the usual construction of walls and floors in kitchens and living rooms, it is felt that appliances meeting these tests should insure ample safety to the user from fire.

"When testing gas-fired room heaters for approval, further protection against ignition of rugs or other floor covering is provided by limiting maximum temperatures on the floor for a distance of three ft., in front of the heater, to the same figures mentioned above. Additional constructional requirements also insure protection from dropping any heated articles on the floor such as might occur through breakage of radiants, etc., while the heater is in use. Approved appliances must also meet an explosion relief test which provides against the possibility of damage from this source.

"The laboratory has completed a wide range of testing on gas ranges, room heaters, flexible gas tubing, and within the last few weeks has begun tests on water heaters, furnaces and gas-fired boilers. The limiting requirements for these appliances are substantially the same as those for ranges and room heaters, and in addition to the allowable wall temperatures a limit has been set on the temperature of flue gases from gas-fired water heaters which should prevent under usual conditions fire risks in basements where appliances are not required to be flue connected.

"At the last annual convention of the American Gas Association a resolution was adopted unanimously, pledging member gas companies to confine their sales exclusively to approved types of appliances as rapidly as the lists of them were made available. Lists of approved types of gas ranges, space heaters and flexible gas tubing are now in the hands of the gas companies. The use of such approved appliances should not only add to the comfort and convenience attendant to the use of gas, but protect the customer from inferior grades of appliances.

"Realizing that the safe performance of an appliance depends also on its method of installation, the American Gas Association has appointed a committee to draw up standards covering the proper methods of installing gas-burning equipments. These standards will have as one of their major considerations the protection against the creation of any fire hazard."

ACCOUNTING SECTION
A. L. TOSSELL, Chairman EDWARD PORTER, Vice-Chairman
H. W. HARTMAN, Secretary

New Method of Payroll Accounting

Description of Procedure Now Being Used by Payroll Department of Baltimore Company

By LAWRENCE J. KESSLER
Accounting Service Department, Consolidated Gas, Electric Light & Power Co., Baltimore, Md.

THERE has been introduced into the company, in the payroll department, a machine that distributes labor hours and transportation charges by accounts, at the same time accumulating the distribution. It is nothing more than 27 adding machines controlled by one keyboard and each having the capacity thereof.

In operation, the amount of transportation and labor hours are set upon the keyboard; the control key and motor board are then depressed. Simultaneously with this operation, we can, if desired, secure a detailed job ticket, thus consolidating into one the four following operations under one previous method: 1. Dodging labor hours. 2. Dodging transportation amounts. 3. Writing detail tickets on maintenance work. 4. Posting charges to construction jobs.

Not only is the work of posting to these records eliminated; it also does away with the proving operation, which was necessary to assure accuracy of posting.

It is not my purpose here to draw a detailed comparison between the previous and present methods as I believe such a course would be confusing, but rather, to tell the story with pictures,

Exhibit No. 1

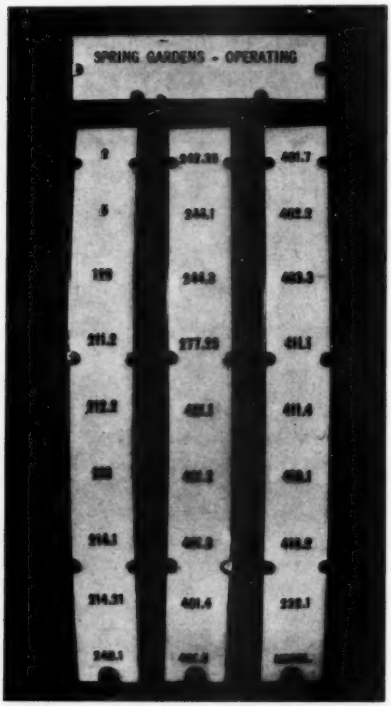


Exhibit No. 2

of what is being accomplished by the aid of these machines.

EXHIBIT NO. 1, THE MACHINES

There are two keyboards, the left being the accumulating section and the right the printing section. The first four keys are transportation charges and record in money values. The next five rows are for labor and record in hours. To the right of the labor keys are three rows of nine keys each. These represent the twenty-seven adding machines, each having the capacity of the key-board, (Exhibit No. 2 will further explain their use.) The keyboard to the right, as its name implies, is a printing section only. It is a combination of letters and numerals and is used for the printing of account numbers on the recapitulation sheet or the detailed job ticket.

EXHIBIT NO. 2, INDEX PLATE

This frame is removable and seats itself between the twenty-seven distributing keys. There is a plate for each payroll, for the reason that accounts change with the different rolls. Account No. 2 on this frame is beside key 27 and when accumulating charges to this account, key 27 would be depressed.

EXHIBIT NO. 3, RECORDING TAPE

This tape serves the same purpose as the tape in any adding machine; viz., to give a printed list and total of the items entered in the machine. The fact that the items are in chronological order as picked off the time sheets is of major importance as a timesaver when locating an error.

SPRING GARDENS OPERATING
DETAIL RECORDING TAPE
JULY 19, 1927.
EXHIBIT No. 3

95222		(21)(18)—	350 0034½
95223		(24)— —	40 0001+
95224		— (12)—	80 0002+
95225		(21)— —	55½
95226		— (18)—	90 0002+
95227		— (13)—	80 0002+
95228		— (12)—	250 0010+
95229	C 4523	— — (1)	250 0010½
95230	SG 5578	(27)— —	450 0010+
95231	SG 2341	(27)— —	250 0010+
95232		— — (1)	55+
95233		— (11)—	25½
95234		(21)— —	350 0007+
95235		— — (4)	25 0001+
95236	179	— — (1)	650 0010+
95237		— (14)—	25 0001+
95238		— — (9)	90 0002+
95239		— — (7)	90 0001+
95240		— (12)—	250 0010+
95241		(21)— —	250 0007+
95242		(19)— —	250 0009+
95243		(25)— —	40 0002+
95244		— (13)—	250 0010+
95245		— — (7)	44+
95246		— (15)—	54+
95247		— (13)—	21+
95248		— (14)—	650 0010½
95248		X— — 11	3505 0284½
95249		X— 27—	1005 0123½

Exhibit No. 3

JUL-19-27 95195 C 4523 ——(2) 250 0010¼
Date | Serial No. | Job or Acct. No. | Dist. Key | Trans. | Labor

Labor Rate_____
Total Labor_____

SPRING GARDENS OPERATING
JOB TICKET
EXHIBIT No. 4.

Billing Rate_____
Amount Labor Billed _____

CON. G. E. L. & P. CO. OF BALTO. - PAYROLL BUREAU

Exhibit No. 4

EXHIBIT NO. 4, JOB TICKET

As previously mentioned in the first part of this article, the job ticket is issued simultaneously and automatically when the amounts are being accumulated in the machine. The issuance of this ticket alone eliminates six operations under our previous method.

EXHIBIT NO 5, JOB LEDGER

The purpose of this record is to accumulate to a job, all charges made thereto. This is done by inserting the form under the printing table of the machine. If the construction project is a large one and several charges are made daily, a control key is provided for the accumulation of these charges and only one posting is made.

EXHIBIT NO. 6, SUMMARY SHEET

After completing the dodging of a roll and verifying its correctness, this sheet, in blank, is inserted under the printing table. The machine is then cleared, producing a record of all charges on the roll. In addition to the twenty-seven accumulators, there are two group totals,

1460-1 PAYROLL BUREAU

CONSOLIDATED GAS ELECTRIC LIGHT AND POWER CO. OF BALTIMORE
LABOR AND TRANSPORTATION DISTRIBUTION
SPRING GARDENS OPERATING DEPT.

JOB NO. S.G 2341
ACCOUNT NO. 2
MONTH OF JULY 1927.

LINE NO.		TOTAL LABOR	DATE	SERIAL NO.	JOB NUMBER	DIST. KEY	TRANS. LABOR
1			JUL-19-27	95197	SG 2341	(27)——	250 0010+
2			JUL-20-27	95215		(27)——	40 0001+
3			JUL-21-27	95216		(27)——	350 0021+
4			JUL-23-27	95217		(27)——	11+
5			JUL-24-27	95218		(27)——	140 0010½
6							
7							
8	EXHIBIT No 5.						
9							

Exhibit No. 5

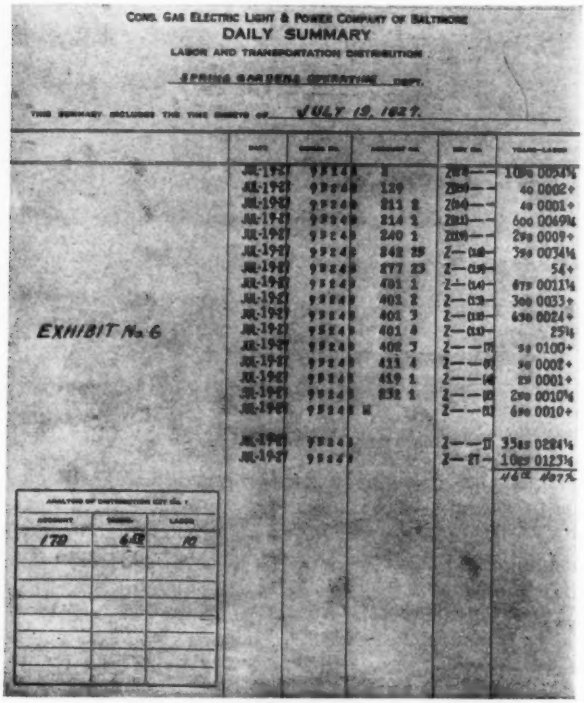

CONS. GAS ELECTRIC LIGHT & POWER COMPANY OF BALTIMORE
DAILY SUMMARY
LABOR AND TRANSPORTATION DISTRIBUTION
SPRING GARDENS OPERATING DEPT.
THIS SUMMARY INCLUDES THE TIME SHEETS OF JULY 19, 1927.
EXHIBIT No. 6

Exhibit No. 6

the sum of which (added manually) is the total of the roll. Progressive recapitulations of these summaries are made weekly, thus at the end of the month the total labor and transportation chargeable to each account is at hand.

The above exhibits constitute all records necessary for the accumulation by accounts of all charges of labor and transportation originating with the payroll. It has already effected a substantial economy in the cost of producing this information as compared with our previous method.

M. I. T. Establishes New Field Station Arrangement

THROUGH C. L. Edgar, president, and R. E. Dillon, superintendent of the generating department, of the Edison Electric Illuminating Company of Boston, arrangements have been completed whereby the students of the course in fuel and gas engineering of the Massachusetts Institute of Technology will do field work and testing at the Edgar Station of the Edison company.

This course is intended to train graduate engineers in the theory and practice of fuel utilization, gas manufacture, and power generation. The work consists of one academic year of graduate study at the Institute, followed by six months' field work. In this field work the theoretical side of fuel and gas engineering studied at the Institute is applied to the actual processes of combustion, gas manufacture, and power generation and oil refining by plant studies and tests on full scale equipment in commercial operation—all carried out under the immediate supervision of a member of the Institute faculty.

The Edgar Station of the Edison Electric Illuminating Company of Boston is one of the newest and most modern of electric central stations. Its equipment was selected to produce extremely economical operation and includes many of the latest developments in the power generation field.

The Edgar Station contains prime movers operating at both 1200- and 350-lb. steam pressure and is equipped with a very advanced type of combustion control. These factors alone evidence the remarkable opportunity which the fuel and gas engineering students of the Massachusetts Institute of Technology are afforded in observing, through study and test work, the detailed working of this central station.

Other field stations of this course are located at the plants of the Cambridge Gas Light Company, the Lackawanna Plant of the Bethlehem Steel Company, the Iroquois Gas Company and the Bayonne Refinery of the Tide Water Oil Company.

PUBLICITY AND ADVERTISING SECTION

HARLOW C. CLARK, Chairman E. FRANK GARDINER, Vice-Chairman
CHARLES W. PERSON, Secretary

Slogan Committee Favors Retention of "You Can Do It Better with Gas"

THE official slogan of the industry is "You can do it better with gas," according to the report of the Association's special slogan committee, made to the Executive Board at its September meeting.

The committee, of which E. Frank Gardiner, director of publicity, Midland Utilities Company, Chicago, Ill., was chairman, carefully considered all the suggestions that were made, and the consensus of opinion was in favor of the slogan that the industry has been using for more than five years.

In making its report the committee called particular attention to one criticism of the present slogan: That it is too long. The committee finds that the original slogan was "You can do it better with gas," and that the qualifying phrase "If it's done with heat," was prefixed to define in a general way the use of gas and to meet the possible objections of combined gas and electric properties.

"Your committee feels that there is no objection to the use of part of the slogan, 'You can do it better with gas,' but that combined properties may desire to use the entire slogan," is the committee's expression on this point.

While the slogan has been used extensively during the past five years, and has attracted much favorable comment, it is expected that it will be used much more in the near future, and will be registered even more effectively in the mind of the public than it is now.

The Slogan Committee consisted of the following: chairman, E. Frank Gardiner, Midland Utilities Company, Chicago Ill.; E. P. Bailey, Jr., Bryant Heater and Manufacturing Company, Cleveland, Ohio; Vincent M. Carroll, The Laclede Gas Light Company, St. Louis, Mo.; A. W. Humm, Standard Gas Equipment Corp., New York, N. Y.; J. L. Johnson, Providence Gas Company, Providence, R. I.; J. C. Jordan, Pacific Gas and Electric Co., San Francisco, Calif., and L. K. Starr, Georgia Power Company, Atlanta, Ga.

Gas Holder Becomes a Swimming Pool in Media

FOLKS in Media, Pa., this summer are swimming in a gas holder, which has been converted into one of the finest pools nearby Philadelphia, according to William Burk, of the Philadelphia Suburban-Counties Gas and Electric Co., Media, Pa.

"The pool is the original iron tank of the holder of the old Media Gas Company, which has been covered with a coating of waterproof cement and rubbed to a smooth surface," says Mr. Burk. "Its depth of 14 feet and its diameter of 42 feet provides ample space for swimming and diving. It has a capacity of 150,000 gallons and the water is fed from a spring at the rate of 15 gallons per minute.

"The plant of the original gas company in Media consisted of three iron retorts each holding approximately 250 pounds of coal. The holder of 20,000 cubic feet capacity in 1902 supplied 300 meters located on five miles

IF IT'S DONE WITH HEAT YOU CAN DO IT BETTER WITH GAS

of main. The iron retorts were removed and a water gas set installed and shortly thereafter the Philadelphia Suburban Gas and Electric Company purchased the plant to distribute gas in Media and vicinity. Later the plant was dismantled and gas was supplied to Media direct from Chester.

"After the holder was dismantled the tank was used as a town dump."

Cities Service Co. Has More than 129,000 Stockholders

CITIES Service Company stockholders of record August 1, 1927, totaled 129,714. This figure is exclusive of stockholders of subsidiary concerns and bondholders of Cities Service Company and its subsidiaries, which bring the grand total up to more than 300,000, the second largest in the United States.

The stockholders are divided as follows:
Preferred stockholders, 66,862.
Common stockholders, 54,747.
Preference stockholders, 8,105.

Placement Service is Started at Univ. of Pa.

IN an effort to cooperate with its alumni, and the industrial and commercial world at large, the University of Pennsylvania through action of its trustees has created the University Placement Service. The Placement Service is a new department which comprehends a counselling service for alumni regarding questions affecting their life work, and it is far more than an appointment or employment office.

To indicate the attitude of the administration of the University of Pennsylvania, the following is a recent statement issued by Dr. Josiah H. Penniman, Provost of the University:

"The University of Pennsylvania Placement Service, which was established by the Trustees on September 20, 1926, is a comprehensive plan whereby the University can now cooperate with its alumni and the industrial and educational world at large in the careful placement of its graduates.

"I believe that through this service our alumni will find a new channel of assistance in the personal problems affecting their life work, and that the industrial and educational world will profit by having available at all times a central University office through which University-trained experts in all the professional fields can be obtained."

The University of Pennsylvania Placement Service supervises the placement work for the entire University. Through its staff and a large faculty committee it reaches every part of the University, and is concerned with the placement of graduates in the arts and sciences, including journalism, literature and many lines leading to teaching positions; engineers; business-trained graduates; architecture and the allied fine arts; graduates in education; medicine; law; dentistry; hygiene; veterinary medicine, and public health.

Through its offices, each year, hundreds of firms apply for graduating students, as well as for men and women who have been graduated for a number of years, to fill positions requiring varied experience and training. The complete files of qualification records and other data have been of great assistance to firms who are seeking candidates for positions.

The service of the University of Pennsylvania Placement Service is given free of charge to its graduates, as well as to all commercial and industrial concerns who seek this invaluable cooperation in the selecting of their personnel.

I. K. Russell Found Dead

I. K. Russell, editor of the magazine *Public Relations,* was found dead in bed at his home in Chicago on Sept. 7. He is believed to have died of heart disease.

GENUINE ENDORSEMENT

A TOTAL of 115 employees of The Koppers Company, Pittsburgh, Pa., are now enrolled in the Home Study Course on Manufactured Gas, offered at Columbia University under the auspices of the Committee on Education of Gas Company Personnel of the American Gas Association.

Within the past month 105 employees of The Koppers Company were enrolled, bringing the total to the amount given above. This places The Koppers Company in first place, in regard to registration in the course despite the fact that The Public Service Electric and Gas Company, Cities Service Company, the Consolidated Gas Company of New York, The Peoples Gas Light and Coke Company, The Brooklyn Union Gas Company, and a number of other companies each have large numbers of employees enrolled.

That gas companies have 1200 employees enrolled in this course is strong testimony to its value, according to Alexander B. Macbeth, president of the American Gas Association.

"Already the course has proved its worth to the industry," says Mr. Macbeth. "Now, with two years of operation behind it, it is developing into one of the greatest aids to education that the industry has ever had."

MANUFACTURERS SECTION

W. E. STEINWEDELL, Chairman H. L. WHITELAW, Vice-Chairman
C. W. BERGHORN, Secretary

What the Exhibitors Will Show at Chicago

More Than Two Hundred Manufacturers Will Show Latest in Equipment and Appliances

THE exhibitions of the American Gas Association have won wide favor in the industry. Bringing together under one roof all the latest developments in appliances and equipment, the exhibit part of the convention has become a most important and influential educational influence. This year at Chicago a most complete showing will be offered to those attending. A glance at the list of exhibitors reveals the names of leaders in the manufacturers' world. The newest, most efficient, and best line of appliances and equipment will be shown.

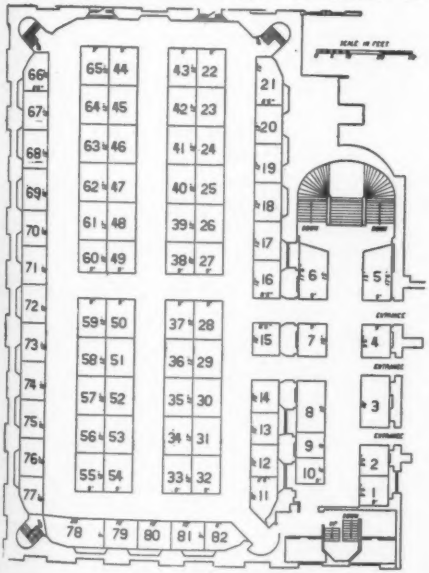
The list given below is a complete one of all exhibitors, booth numbers, and products to be displayed, as of Sept. 26:

BASEMENT

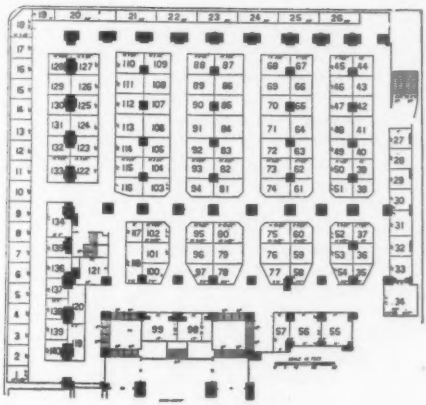
A. G. A. Exhibit—publications & service ..... Lobby
Akme Flue, Inc.—flues 78
Alpha-Lux Co., Inc., The—gas apparatus 45
American Cast Iron Pipe Co.—cast iron pipe and pipe jointing material 99
American Gas Association Laboratory—laboratory activities 5
American Gas Furnace Co.—industrial appliances 115
American Gas Products Corp.—boilers and radiators 56
American Heater Corp.—water heaters .. 124
Armstrong Cork & Insulation Co.—insulation materials 28
Associated Gas & Electric System—Consumers Construction Co.—plants & equipment 48
Bailey Meter Co.—metering equipment .. 83
Barber-Greene Co.—trenching & conveying equipment 116
Barstow Stove Co.—gas ranges 17
Bartlett Hayward Co., The—plant equipment 95
Beckwith Company, The—gas ranges 30
Bernitz Furnace Appliance Co.—air-cooled lining for water gas sets 104
B-Line Boiler Co.—gas-fired boilers and appliances 13
Bridge & Beach Mfg. Co.—gas ranges .. 130
Bryant Heater & Mfg. Co.—steam and water boilers, warm air furnaces, accessories 81
Celotex Company, The—insulation material 66
Chambers Mfg. Co.—gas ranges 71
Chapman Valve Mfg. Co., The—valves .. 100
Chicago Bridge & Iron Works—plant equipment 106
Chicago Tubing & Braiding Co.—gas tubing 117
Cleveland Co-Operative Stove Co., The—gas ranges 94
Cleveland Gas Burner & Appliance Co., The—gas burners 11
Cleveland Trencher Co.—trenching machine and trailer 134
Clow & Sons, James B.—gas steam radiators and gas furnaces 122
Columbus Heating & Ventilating Co., The—gas house heating furnaces 9
Combustion Utilities Corp.—industrial equipment 33
Connersville Blower Co., The—gas pumps and meters 133
Co-Operative Foundry Co.—gas ranges 16
Cooper Oven Thermometer Co., The—gas range thermometers 67
Cutler Hammer Mfg. Co., The—calorimeters and valve controls 52
Detroit-Michigan Stove Co., Garland Div.—domestic and hotel gas ranges 55
Jewel Div. Gas Ranges 102
Detroit Vapor Stove Co.—gas ranges 51
Drake Non-Clinkering Furnace Block Co.—water gas generator lining 105
Dun-Rite Clock Device Co.—time control and cooking clocks 54
Eclipse Fuel Engineering Co.—industrial appliances and control equipment 26
Economy Governor Co.—regulator equipment 41
Electric Household Utilities Corp.—washers and ironers with gas heating attachment 85
Electrolux Servel Corp.—gas refrigerators 125
Estate Stove Co., The—ranges and heaters 31
Fisher Governor Co., The—gas regulators 59
Fuller-Warren Co., The—gas ranges 86
Gas Refrigeration Corp.—gas refrigerator 123
General Brass Co.—brass goods 63

Giant Manufacturing Co.—pipe pushers .. 19
Globe Stove & Range Co., The—gas ranges 76
Groble Gas Regulator Co.—gas regulators 93
Hays Manufacturing Co.—brass gas service stops, curb boxes, tapping and drilling machines 10
Hill, Hubbell & Co.—pipe coatings, technical paints 46
Hoffman Heater Co., The—gas water heaters 74
Home Incinerator Co.—incinerators 97
Hones, Inc., Charles A.—industrial burners and appliances 3
Honeywell Heating Specialties Co.—controls 7
Imperial Brass Mfg. Co., The— gas mixers, gas range cocks, and special brass cocks 39
Intercolonial Gas Journal of Canada—publications ..... Lobby
International Combustion Engineering Corp.—plant equipment 102
Johnson Gas Appliance Co.—industrial gas appliances 14
Kemp Mfg., The C. M.—small size proportional air and gas mixing machine.. 20
Kitson Co.—gas cocks 139
Klimatic Clothes Dryer Corp.—clothes dryers 89
Kompak Co., The—automatic water heaters 101
Lamneck Co., The W. E.—gas-heated laundry dryer 128
Lavino & Co., E. J.—gas purifying material 38
Lawson Manufacturing Co.—gas room heaters and water heaters 12
Leeds & Northrup Co.—signal light recorders for temperature of water gas, and indicators, recorders and controllers 36
Link-Belt Co.—vibrating screen, portable loader, car spotter elevating and conveying machinery 103
Logan County Coal Corp.—gas coals 96
Lovekin Water Heater Co.—gas water heater 82
Lunkenheimer Co.—engineering appliances 108
McWane Cast Iron Pipe Co.—cast iron pipe 120
Magee Sales Co.—gas ranges 8
Magno Products—rust preventives and paint 35
Majestic Mfg. Co.—hotel gas ranges 23
Malleable Iron Range Co.—gas ranges .. 60
Maxon Premix Burner Co., The—air heater, automatic controls, pressure blowers, and burners 37
Mears-Kane-Ofeldt, Inc.—steam boilers 87
Merco Nordstrom Valve Co.—valves 73
Mettler Co., Lee B.—industrial gas burners 1
Mid-West Incinerator Corp.—incinerator 58
Milwaukee Gas Specialty Co.—gas range lighters 64
Mine Safety Appliances Co.—resuscitation devices 29
Minneapolis Heat Regulator Co.—thermostatic controls 110
Moore Brothers Co.—gas ranges 22
Mueller Furnace Co., L. J.—gas-fired steam and hot water boilers, warm air furnaces 121
Mulcare Engineering Co.—governors 40
National Lead Co.—red-lead & products 27
National Refrigerating Co.—gas refrigerator 127
Ohio Foundry & Mfg. Co., The— gas ranges and fireplace goods 25
Oldfield Engineering Co.—plant equipment 43
Patrol Valve Co., The—thermostatic gas valves and controls 6
Peerless Heater Co.—gas-fired boilers . 32
Permutit Co., The—water softener, Ranarex instrument 50
Public Service Production Co.—plant equipment 111
Public Service Stock & Bond Co.—models, charts, pictures 112
Regent Stove Co., The—gas ranges 114
Reynolds Gas Regulator Co.—gas regulators and governors 15
Richmond Radiator Co.—gas-fired boiler 18
Robins Conveying Belt Co.—screens, idlers, grizzly screens 80
Roots Co., The P. H. & F. M.—gas meters, gas pumps, blowers 88
Safety Gas Main Stopper Co.—stoppers, gas main bags, street department supplies 77
Sands Mfg. Co., The—water heaters 98
Schurtz System Refrigeration Co.—gas-operated commercial refrigerator 129
Scientific Heater Co., The—furnace, dryer and garage heater 118
Sexton Stove & Mfg. Corp., S. B.—gas ranges 62
Smith Mfg. Co., The A. P.—plant equipment 90
Superior Sheet Steel Co., The—sheet steel products 65
Spencer Thermostat Co.—thermostats, safety pilots, relief valves, burners 119
Sprague Meter Co.—cast iron meters and gas regulators 2
Stacey Bros. Gas Construction Co., Inc., The—plant equipment 61
Standard Calorimeter Co., The— record-

ing gas calorimeter 49
Standard Gas Equipment Corp.—hotel gas appliances 24
Sturtevant Co., B. F.—turbo-blowers, multistage compressors 79
Sullivan Machinery Co.—compressors and air tools 69
Superior Manufacturing Co., The—gas ranges and gas-heating stoves 107
Surface Combustion Co., The—industrial equipment 34
Sweet & Doyle Foundry & Machine Co.—furnace-control valves, gas burners .. 21
Teekorator, Inc.—incinerators 47
Time-O-Stat Corp., The—heat controls & regulators 57
Tinnerman Stove & Range Co.—gas ranges 75
Tyler Company, The W. S.—electric screen and screening equipment 113
U. G. I. Contracting Co., The—gas apparatus and equipment 91
Universal Smokeless Boiler Co.—gas boiler 4
U. S. Bureau of Mines—odorimeter 137
Utilities Publication Co.—periodical, trade paper 53
Utilities Publication Committee—P. U. Reports ..... Lobby
Vesta Gas Range & Mfg. Co.—gas ranges 70
Victaulic Co. of America—pipe couplings and fittings 126
Welsbach Co.—lighting fixtures, room heaters, water heaters 68



Grand ballroom plan



Basement plan

West Bend Aluminum Co.—aluminum products 44
Wilcolator Co., The—gas ranges and heat controls 109
Wilder Metal Co.—oven linings 42
Wood Conversion Co.—balsam-wool insulation 72
Youngstown Pressed Steel Co., The—stove legs and pressed steel parts 84

BALLROOM

Abendroth Bros.—gas ranges 38
A-B Stove Company—gas ranges..... 31
American Gas Journal—publications 9
American Meter Company—gas meters .. 64
American Range Corp.—gas ranges 57
American Schaeffer & Budenburg Corp.—industrial instruments 10
American Stove Company—gas ranges and heaters 47
Blodgett Co., Inc., The G. S.—portable gas bake oven 69
Bristol Company, The—recording instruments 11
Carbide & Carbon Chemicals Corp.—pyrofax equipment and gas-burning appliances 56
Chaplin-Fulton Mfg. Co., The—gas regulators 51
Chicago Vitreous Enamel Product Co.—enamel products 39
Clark & Co. Div., Geo. M.—gas ranges and heaters 49
Cleveland Gas Meter Co., The—tin gas meters 14
Cleveland Heater Co., The—tank and storage automatic gas water heaters .. 26
Connelly Iron Sponge & Governor Co.—iron sponge, governors, distribution equipment 7
Cribben & Sexton Co.—gas ranges 78

Crown Stove Works—gas ranges 40
Dangler Stove Co. Div.—gas ranges and heaters 60
Davis Emergency Equipment Co., Inc.—first aid kits and supplies—fume and air line masks and oxygenator 61
Dearborn Chemical Co.—rust, preventive 13
Direct Action Stove Co., Div.—gas ranges and heaters 45
Dresser Manufacturing Co., S. R.—couplings, clamps and fittings 52
Electric Indicator Corp.—indicators and recorders 80
Elgin Stove & Oven Co.—gas ranges, laundry stoves, hot plates and portable bake ovens 58
Eriez Stove & Mfg. Co.—gas ranges 6
Favorite Stove & Range Co.—gas ranges and heaters 4
Foxboro Co., Inc., The—indicating, recording, and controlling instruments .. 35
Gas Machinery Co., The—gas plant equipment 28
General Gas Light Co.—radiant fires 70
Glenwood Range Co.—gas ranges 23
Grayson Mfg. Co., The J. H.—radiant space heaters 72
Griffin & Co., J. J.—gas meters 68
Helme & McIlhenny—gas meters 66
Hoffman Specialty Co.—venting valves 34
Homestead Heater Co.—fireplace heaters 71
Humphrey Co. Div., Ruud Mfg. Co.—water heaters 32
Improved Equipment Co., The—gas plant equipment 30
Isbell-Porter Co.—gas plant equipment 53
Johns-Manville Corp.—asbestos products 50
Koppers Construction Co., The—gas plant equipment 18
Lambert Meter Co.—gas meters and gas apparatus 62
Lattimer-Stevens Co., The—meter connections, stopcocks and seals 8
Linde Air Products Co., The—welding apparatus, cylinders and supplies 55
Lyon Metallic Manufacturing Co.—Lyon Steel Shelving 5
McDonald & Co., D.—gas meters 67
Maryland Meter Works—gas meters 65
Metric Metal Works—gas meters 63
Mueller Co.—gas brass goods 1
National Tube Co.—tubular products 29
New Process Stove Co., Div.—gas ranges and heaters 48
Parsons Co., The—trenching machinery 12
Peninsular Stove Co., The—gas ranges .. 81
Pittsburgh-Equitable Meter Co.
Pittsburgh Div.—meters 41
Equitable Div.—meters 42
Pittsburg Water Heater Co.—water heaters 33
Quick Meal Stove Co. Div.—gas ranges and heaters 46
Reliable Stove Co. Div.—gas ranges and heaters 44
Reznor Manufacturing Co.—gas heaters 20
Riter Conley Co.—gas plant equipment .. 24
Robbins Publishing Co.—publications .. 2
Roberts Brass Mfg. Co., The—gas cocks for ranges, water heaters, hotel appliances, etc. 79
Roberts & Mander Stove Co.—gas ranges 43
Robertshaw Thermostat Co.—thermostats 3
Roper Corp., Geo. D.—gas ranges 54
Ruud Manufacturing Co.—water heaters 37
Semet-Solvay Engineering Corp.—equipment 59
Slattery & Bro., Inc., J. B.—ranges and heaters 73
Stacey Manufacturing Co., The—gas plant equipment 22
Standard Gas Equipment Corp.
Acorn Div.—gas appliances 74
Oriole Div.—gas appliances 75
Triplex Div.—gas appliances 76
Vulcan Div.—gas appliances 77
Superior Meter Co.—gas meters 17
Tappan Stove Co., The—gas ranges 16
Titeflex Metal Hose Co.—gas tubing 15
U. S. Cast Iron Pipe & Foundry Co.—cast iron pipe 25
Wailes Dove-Hermiston Corp.—pipe coatings 21
Walker & Pratt Mfg. Co.—gas ranges .. 27
Western Gas Construction Co., The—plant equipment 19
West Gas Improvement Co., Inc.—plant equipment 82
Wood & Co., R. D.—cast iron pipe & fittings 36

THIRD FLOOR

OFFICE EQUIPMENT MANUFACTURERS

Will show office equipment, machines & accessories.

Addressograph Co.
Burroughs Adding Machine Co.
Ditto, Incorporated.
Felt & Tarrant Manufacturing Co.
General Office Equipment Corp.
Elliott Fisher Div.
Sundstrand Div.
Jamestown Metal Desk Co.
Kalamazoo Loose Leaf Binder Co.
Proudfit Loose Leaf Co., The
Rand Kardex Service Div., Remington Rand, Inc.
Remington Typewriter Co.
Underwood Typewriter Co.
Working Exhibit, Gas Company Accounting Operations

EIGHTH STREET THEATRE

Window Display Committee Exhibit..Stage

INDUSTRIAL GAS SECTION
H. O. LOEBELL, Chairman F. C. MACKEY, Vice-Chairman
C. W. BERGHORN, Secretary

The Gasco Oven Proves Itself in Operation

Description of Oven Designed and Built Entirely By and Under Direction of Engineers of Portland Gas and Coke Company

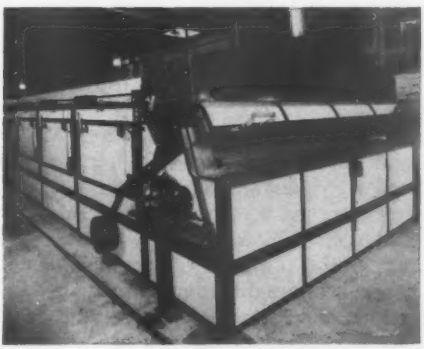
By E. L. HALL
General Superintendent, Portland Gas & Coke Co., Portland, Ore.

AFTER two years of study and investigation on traveling ovens it was found that the tendency of the wholesale bakers to install gas-fired traveling ovens was quite marked. Although a number of electric and oil-fired ovens have been installed in an experimental way, the wholesale baker of the country nevertheless settled on the gas-fired traveling ovens as their standard production appliance. Their decision was largely influenced by the low cost of production per loaf of bread when comparing the gas-fired oven with the electric appliance, and operating facility when comparing the gas-fired appliance with the oil-fired appliance. The study revealed that the electric oven had a number of features which the gas ovens designed up to two years ago did not possess to a marked degree; namely, flexibility in changing temperatures carried in the oven and control of a uniform temperature without the use of large masses of brick.

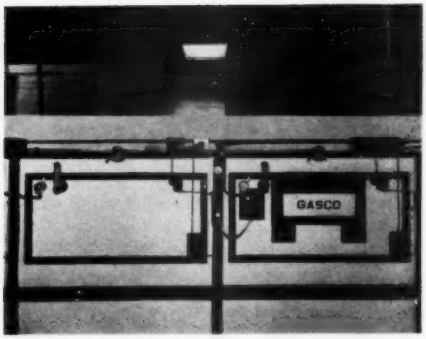
For the reasons stated above, it was decided to construct a gas-fired oven which would show high fuel efficiency and at the same time possess the advantages of heat control and flexibility to even a larger degree than the electric oven displays. At the same time the utmost stress was put on simplicity of design, variation in speed of the conveyor, and variation of the temperature carried within the oven at varied conveyor speeds and uniformity of temperature throughout the oven. A further consideration was the portability of the oven; that is, the oven was designed so that it could be erected in sections small enough to permit easy handling and at the same time permit of enlargement by simply adding new sections in case the output of the bakery increases.

GENERAL DESCRIPTION AND CAPACITY

The oven installed at the Barker Bread Co., Portland, Oregon, is 53′ 6″ long



Left: Completed installation from operating side. The large heavily insulated doors, while weighing in excess of 1000 lbs., and extending entire width of oven, are counterweighted so they can be easily shut and open by slight pressure of one hand. Right: Loading end of completed appliance. Note the starting and stopping electric switch button is in center of end section. This is a dual control, one at each end of the oven



Section of operating side, including controls, thermometers, observation door, interior lighting arrangement, and gas and electric spark pilot lights

over-all, 11′ wide and 4′ 3″ high, and has a normal rated capacity of 2600 one-pound loaves of bread per hour. The oven is neatly finished on the outside with white fire enameled sheet steel on three sides. The side adjoining the engine room containing the burners and controls is finished in black enamel. Expansion and contraction are taken care of in a novel manner. Instead of allowing the oven to expand in one direction, suitable slip joints are provided for between the sections to allow the sections to telescope within themselves. It must be remembered that when the oven is operated at a temperature of 500° F. the oven would expand two inches. Therefore the importance of the telescope joint will be quite apparent.

SECTIONAL CONSTRUCTION

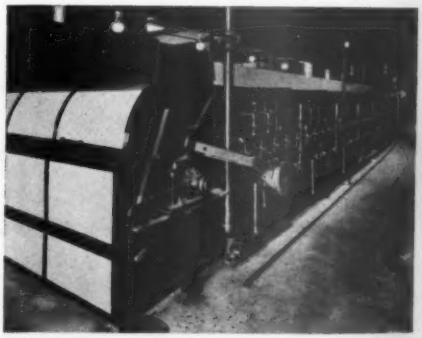
The oven comprises 11 sections: One loading section, one unloading section and nine middle sections. The loading and unloading sections support the bearing mechanism, vents, doors, etc. Each end section is equipped with a canopy where the products of combustion and waste heat are drawn off through gravity ventilators extending through the roof. These ventilators in turn are equipped with down draft diverters and ventilating hoods to insure a constant and uniform draft on the oven. This construction insures that the operator is not exposed to objectionable heat and vapors usually experienced in the conveyor type of traveling oven. All oven sections are heavily insulated with brick and powder seven inches in thickness, keeping the outside of the oven cool at all times.

The iron work is assembled by welding and the insulation is contained between sealed metal walls preventing the infiltration of moisture which would cause the deterioration of the insulation material. The steel used in construction is of an analysis insuring rust-resisting qualities.

CONVEYOR

The construction of the conveyor is entirely novel, being made of a corrugated material similar to that used on the steps of fire escapes, etc. This type of construction is responsible to a large extent for the uniform temperatures prevailing in the oven. The conveyor is 8′ 8″ wide inside of the roller chains, and is equipped with rollers which travel along tracks.

The malleable iron roller chain which carries the conveyor deck would expand 4″ when heated to 500° F. To take up for the expansion and contraction of the chain the shaft bearings on one end are



Manifold or burner side of oven—while appearing complicated, it is simplicity itself from operating standpoint, since it is entirely automatic and the gas and air are mixed at the burner, reducing possibility of backfiring from theoretically correct mixture of gas and air to a minimum

rested on a sliding base and tension is maintained on them by means of counter weights. This construction is superior to the usual spring take-up since the weight on the tension carriage is always the same, whereas the tension of springs would vary due to wear of the springs and loss of elasticity.

BURNER ARRANGEMENT

The burners are of the pipe tunnel premix type, developed in our laboratory, working on a manifold pressure of 10" water. The air is supplied by a centrifugal blower delivering air at 1½ lbs. pressure to surface combustion proportional mixers. In these mixers a complete mixture of gas and air results, which eliminates the necessity for a secondary air adjustment, overcoming the difficulty experienced with manual burner adjustment. Each section is equipped with seven burners extending over the entire width of the oven, five below the conveyor and two above. There are altogether 63 burners on the oven fed by nine mixers. Gas is supplied to the mixers at low pressure and is reduced by a pressure controller to atmospheric pressure before entering the mixer.

DRIVING MECHANISM

The conveyor is driven by a Reeves variable speed transmission actuated by a three h.p. motor allowing a variation in speed from 15 minutes to one hour for the travel of the conveyor from end to end of the oven. There is also a six h.p. gas engine provided which drives the oven in case of electric power failure. The oven can be operated independently of electric power.

PILOT LIGHTS

The burners are lighted by a dual system of ignition, one system operated electrically and the other by gas. By means of a system of transformers and cables, a high-tension electric spark is delivered to two spark plugs for each baking section. These spark plugs are actuated for one second and are off for four seconds. The intermittent operation of the spark ignition system is controlled by a motor operating two mercury switches. There are a red and a green signal light in the circuit with the electric ignition system which shows the operator at all times when the ignition system is in operative condition. Each section is equipped with two gas pilot lights, the reliability of which is well known and needs no further discussion.

HEAT CONTROL

Each section is thermostatically controlled by means of an oven heat regulator which permits of close temperature regulation within the baking chamber. There is also provided a thermometer for each baking section which permits a check on the oven temperature maintained by means of automatic heat regulation.

STEAM PIPES

The oven is equipped with steam pipes extending over the width of the oven to throw a stream of steam on the bread as it advances. The steam supply is controlled by a steam-pressure regulator and the quantity of steam released can be varied by the operator in accordance with the grade of bread handled in the oven.

OPERATING COSTS

The operating cost of a traveling oven depends to a large extent upon the amount of bread that is being baked in it in a given time. When the oven was operated over a period of 16 hours at 55 per cent capacity, 1.37 cu.ft. of 570 B.t.u. gas per pound of bread were consumed, including the gas used to heat up the oven. Deducting the amount of gas used to heat up the oven, the gas consumption was 1.27 cu.ft. per pound of bread.

When the oven was operating over a ten-hour period loaded to 85 per cent of its capacity, 0.85 cu.ft. of gas were consumed per pound of bread. Operating the oven continously at full capacity, 0.7 cu.ft. of gas per pound of bread were consumed. At the prevailing rate 1000 pounds of bread are baked at a cost of 40 cents.

Standardization

(Continued from page 604)

waste and causing confusion in connection. Under the leadership of the U. S. Department of Commerce the manufacturers and the plumbers, together with the A. G. A., got together and adopted simple standards that go far toward ensuring increased efficiency of operation, convenience of installation, and reduced connection costs.

Another striking and far-felt activity of the American Gas Association is standardization and research work on asphyxiation and its close cooperation with the U. S. Public Health Service and other national authorities. From these studies has been developed a standard prone pressure method of resuscitation that is at once efficacious, easy to teach and easy to learn, one that has been made available to the country at large for life saving. In this connection an interesting research is being made, in cooperation with the U. S. Bureau of Mines and the U. S. Army Chemical Warfare Service, to develop warning agents. It is confidently hoped standard formulae will be developed that will enable the gas industry to distribute gas that will give unmistakable evidence of leakage and prevent accidental and planned asphyxiation.

In the great underground investment of the gas industry, representing millions of dollars expended for mains and services, soil corrosion and electrolysis must be constantly guarded against to prevent capital waste and gas loss. Here again the cooperation of the national Bureaus of Standards and Mines has been helpfully extended in the development of standard prevention methods.

Carping critics say America is a standardized nation. They are wrong; America is a standardized country to the degree that it uses standards as the tools of industry and the instruments of commerce. Standards are but the means to an end and they serve their purpose well in making uniform quality products available, stabilizing production and employment, and lowering cost to the public by making mass production possible. On these and other related fundamentals rest much of the material prosperity, happiness and *joie de vivre* that are at once the admiration and envy of our visitors and the strangers within our gates.

Laboratory Develops Method

(Continued from page 612)

ratory has found that the use of a Thomas meter makes these determinations very simple. The meter used in these tests consists of a jacket containing an electric heating coil and two resistance thermometers, one placed each side of the resistance coil. These thermometers are protected from the coil by radiation shields. The indicating instruments used are a Wheatstone bridge indicator and a carefully calibrated wattmeter. In operation the resistance thermometers are placed in the Wheatstone bridge circuit. This bridge has the resistances so arranged that it will be balanced at a definite temperature rise (2.22°F.). As the air flows over the heating coil, its temperature is increased according to the amount of current flowing through the coil.

The heating current is adjusted by means of a rheostat until the bridge is balanced, indicating that enough heat is being liberated to raise the temperature of the air just 2.22°F. After the bridge is balanced, the reading of the wattmeter is noted, and the rate of air flow computed from the specific heat of the air and the heating current required. Corrections for the humidity of the air can be made if desired. The weight of water vapor is less than that of air but its specific heat is more, the product of these factors being almost the same for both air and water vapor. Since we are concerned with the heat capacity of the air rather than its actual weight, sufficiently accurate results will be obtained by omitting the humidity correction.

The method is simple and rapid, and check tests prove it sufficiently accurate.

COMMERCIAL SECTION

J. J. BURNS, Chairman G. M. KARSHNER, Vice-Chairman
J. W. WEST, Jr., Secretary

What Future for Home Economics in Utilities

Home Service is Growing and Will Continue to Grow Because It is Service to the American Home

By ADA BESSIE SWANN
Director, Home Service Department, Public Service Electric and Gas Company, Newark, N. J.

Miss Swann

IN this day of speed and rapid development, one hardly dares to prophesy of the future, especially so of home economics in the utility field, its growth and untold success have been so amazing and so rapid.

It may be well to consider "why" its success has been so pronounced before considering its future, especially when one remembers that it is only within the last three years that home economics has been given serious attention by utility companies.

Four years ago at a meeting of the American Gas Association I was appointed chairman of a national committee to promote home economics in utilities. At that time sixteen gas and electric companies were operating so-called home service departments, only four of which were truly equipped with the right personnel for the work. At the end of two years of hard committee work, ninety-six gas and electric companies had organized home service departments under trained women. Today some one hundred and thirty companies have home service departments and from a recent survey made by the Home Service Committee of the National Electric Light Association another hundred are interested to organize, waiting only for a budget appropriation or the right person to head the department.

Address before annual convention of American Home Economics Association.

Perhaps a word about this "title" of home service might be well here.

The gas and electric companies were anxious to give this department which was to deal strictly with its women customers, the home makers, a name that signified its service to the problems of the home, including not only foods and cookery, but every subject of home building and management. It seemed advisable to omit the word "economics" and to call such educational departments home service, because it so truly expressed what the utility was trying to do for the homes served by its lines.

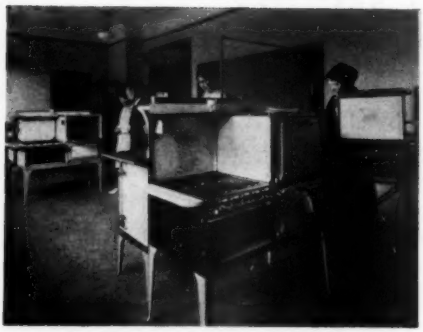
With this little explanation, I may now refer back to that "why."

Why did home economics in the utility field take with the officials of gas and electric companies and with the public?

First, the broad-visioned utility executive saw what a tremendous value educational work in home economics to the women customer was going to mean to him in good will and better public relations. Next it was going to keep the products of his concern, gas and electricity, more constantly in use. Third, if in the business of merchandising gas or electricity consuming appliances, it was going to stimulate interest in and create a desire for the best of these appliances.

All selfish reasons we'll admit, but when translated into a "service to home makers," most worthy.

This same service "took" with the public, because the gas and electric companies are the unbiased and coordinating agents; they can give a service broad in scope without apparently trying to sell any one thing. That it indirectly did in-



Scene at A. G. A. home service course offered by Columbia Univ. this past summer

crease the sale of its products, gas and electricity, and its merchandise (if in the merchandise business), seemed quite remote and the public immediately endorsed its programs. I think I speak truthfully when I say the programs took more effectively than home service work done through any other commercial channels. That is, for a steady, daily, constant growing work in the same territory for a period of time.

Home economics work, such as the so-called cooking schools conducted for one week at a time through the leading newspaper of a city or town in cooperation with manufacturers and local agencies, are high successes for the time of the school, but the work is done and the school moves on, leaving a fund of knowledge and awakened interest in better cooking methods without continuous effort or results.

The home service department of a utility must stand day in and day out as a reliable, dependable, and a creating department in its territory, because the company that serves the homes on its lines, with gas, electricity and in some places water, and in some transportation, must stand the test of being one of the family, a good neighbor, and also be able to furnish the latest and most authentic information concerning home problems, especially those pertaining to the service of gas and electricity.

Another reason for the success of home service of utility companies with the public is because in communities where gas and electricity are available, they soon become necessities; they are not expensive to use compared to other household commodities and the service they render to the home and to life itself vastly exceeds that of any other single commodity.

The wise application of such useful commodities appeals to the homemaker. She is seeking this information eagerly through every educational medium.

SUMMARY

The future of home economics in the utility field is so brilliant, so full of untold possibilities that one wishes not to grow old, so anxious is one to see its development in all its glory.

Utilities all over the United States, Canada, and even South America and dark Africa, are seeking home service information and are organizing home service departments. The recent survey made by the National Committee shows one hundred gas and electric companies ready to organize such departments, waiting only for a budget appropriation or the right person to head the department.

Just a word about that "right person." She must be a woman of experience and training, not only trained in foods and nutrition but one with a keen insight and a deep understanding of home problems who has learned by hard experience and who is still practicing the profession of home making. A woman with a human sympathy for the stress and strain of family life.

In concluding let me quote the words of a vice-president of one of the largest utilities in the United States: "The work of a Home Service Department is 'mass' education to create a greater demand for a product, so subtly done that it creates 'mass' friendship along with the demand. There is no central station so small and none so large that it *can afford* to be *without* a Home Service Department."

TECHNICAL SECTION

WALTER C. BECKJORD, Chairman HARRY E. BATES, Vice-Chairman
H. W. HARTMAN, Secretary

Interconnection Solves an Economic Problem

(Continued from page 593)

joints tested under 25 pounds pressure only two showed leaks. These were remade and proved to be tight. A test of 25 pounds air pressure was applied to successive sections of the 16″ main as laid.

The tests, conducted to determine the type of joint to be used, were carried out at the plant of the Malden & Melrose Gas Light Company. We undertook to determine the relative merits of cast-lead, lead wool and the sand-cement joints and at various pressures.

We found that for pressures over 10 pounds per sq.in. it was hard to make a lead joint tight without re-caulking. The lead wool joints showed leaks under 10 pounds pressure, whereas the sand-cement joint tested tight with pressures up to 85 pounds, increased in successive steps, and remained tight at 85 pounds per sq.in., which was as high a pressure as the compressor was capable of developing. One of the other joints besides the sand-cement joint which was found to be tight at this pressure was a cast-lead joint, but after a couple of light taps with the caulking iron and hammer the lead joint leaked, indicating that vibration may cause the lead joint to fail. The sand-cement joint remained absolutely tight.

The placing of the 100-ft. horizontal bottom section of the syphon was a very interesting piece of work. This required the closing of the river channel to navigation for only two hours.

Previously the Bay State Dredging Company had dredged a trench approximately 25 ft. below the bottom of the channel. This places the pipe nearly 40 ft. below mean low water and well below any future dredging of the channel. The 100-ft. length of 24″ flanged pipe had been made up in one piece on a barge and was towed into position over the trench.

A lighter equipped with a large derrick, manned by a crew experienced in this class of work, was towed alongside. When slung into position for lowering, the 100-ft. section weighing 20 tons was found to hang dead level, the bottoms of the drip pots on either end just touching the water.

Three divers attended the placing of the pipe 45 ft. below the surface of the water. Later, after the risers were in position, it was found that the levels of the top fittings at either end varied less than one inch, indicating the accuracy of the work which for underwater conditions, is, we believe, remarkable.

The illustrations show the character and many details of the installation and some of them show the interesting parts of work carried out.

The entire installation is under the direction of Charles H. Tenney & Company, Engineers, Boston, Mass., and the total cost will amount to approximately $110,000.

Alpha-Lobelin

(Continued from page 610)

respiration, with persistent severe nausea and repeated projectile type of vomiting and sneezing. Thirty minutes after the injection he perspired freely and complained of great weakness.

In two men both about sixty years of age with rather severe arteriosclerosis, Cheyne-Stokes breathing developed after 10 mgm. of the drug was administered. In one of these patients there was also a fall of blood pressure of 40 mm., fifteen minutes after the injection of the drug.

Observations of a similar nature were made on fifteen patients with disturbances of respiration of different etiology (alco-

hol poisoning, morphine depression, ether and morphine, cerebral hemorrhage, illuminating gas poisoning and veronal poisoning). In every patient about forty-five minutes after lobelin, carbon-dioxide and oxygen mixture (10:90) was administered through a respiratory bag, in order to compare the stimulating effect of CO_2 and O with that of alpha-lobelin.

Alpha-lobelin in all the patients observed, produced either no appreciable stimulation of the respiration, or there was only a slight transient stimulation. Occasionally various periodic disturbances of the respiration were observed. For example, in one patient with alcohol poisoning, twenty-seven minutes after administration of alpha-lobelin there appeared for six minutes spasmodic, cough-like breathing, followed by periods of almost complete apnea of fifteen seconds duration. It is very suggestive that this respiratory disturbance, like the others mentioned above, is due to the medullary action of the drug.

In every instance the administration of carbon dioxide and oxygen mixture was followed by a marked and persistent increase in the ventilation. Repeated administration of the gas mixture resulted in repeated stimulation.

SUMMARY AND CONCLUSION

The effect of subcutaneous, intramuscular and intravenous administration of the drug to animals, rabbits and cats, with morphine poisoning, with poisoning from derivatives of barbituric acid and chloral, with poisoning from combination of morphine and barbituric acid derivatives, with carbon-monoxide poisoning, and finally to animals with depressed respiration due to increased intracranial pressure, was found to be variable.

When intravenous administration to animals under the above experimental conditions produced stimulation, the latter was of short duration, and was followed occasionally by depression.

In man the subcutaneous and intramuscular administration of the drug in ether coma, in respiratory depression induced by morphine, in alcohol and veronal poisoning was unreliable, and occasionally associated with vomiting, sneezing and various types of respiratory disturbance.

Carbon dioxide and oxygen mixture was a more efficient and safer respiratory stimulant than alpha-lobelin.

Animals and men with normal respiration are more sensitive to the medullary effect of alpha-lobelin than when the respiration is disturbed.

We wish to thank Drs. Francis W. Peabody and Cecil K. Drinker for their help and advice.

Allied Trades Cooperation

(Continued from page 607)

National Association with other interested associations.

F. C. Stiller, of Minneapolis, said he had installed many gas-fired boilers and had found from experience that for an average small house of eight or nine rooms the cost for gas fuel with a hot water installation is about 50 per cent above coal, and on the larger houses with steam or vapor systems it is about 100 per cent. The price of gas in Minneapolis is a dollar a thousand.

Upon motion duly made and seconded the report on gas house heating was accepted.

A vote of thanks was extended to Mr. Macbeth for his special interest in the convention and its problems.

W. L. Fleisher, of New York, told of the fine spirit of cooperation shown by the American Gas Association, mentioning the acceptance of the standards for figuring radiation by the A. G. A. House Heating Committee and the conference between Mr. Whitelaw and the Committee on Standardization on testing and rating gas-fired boilers.

NATURAL GAS DEPARTMENT

N. C. McGOWEN, Chairman S. W. MEALS, Vice-Chairman

Ingenious Automatic Drip Uses Gravity for Motive Power

THE Bruce-Knerr automatic drip is an ingenious device for handling water from wet gas wells so that the water is dumped periodically as it accumulates, without waste of gas. It is the invention of F. D. Bruce, superintendent of gas measurement and A. W. Knerr, master mechanic, both of the Oklahoma Natural Gas Corp. Patent on the device is the property of the Oklahoma Natural.

In addition to those used by the Oklahoma Natural, a number of these drips have been placed in use by other companies, including the Prairie Oil & Gas Co., Devonian Oil Co., and Continental Oil Co.

In the words of Mr. Bruce, one of the inventors, the drip will work until the law of gravity is repealed, as it depends entirely on gravity and correct adjustment for its operation. Once set and started working, it requires no further attention, performing its duty automatically. It consists essentially of a barrel set on a slight slope, into which water from the well runs. The barrel is held in position by counterweights until weight of water in the barrel is greater than that of the counterweights. When this weight has been reached, the barrel drops, opening a valve, and the water is dumped. As soon as enough water has been discharged the counterweights again lift the barrel, valve is closed, water starts accumulating again, and the process is repeated.

The drips are practically always used in conjunction with a vertical drip, or separator, in which the gas and water are separated. De-watered gas is taken off the top of these separators, and the water fed into the automatic drip through a short connection. The complete hook-up, as used on an Oklahoma Natural well in the Osage, is shown in an accompanying picture.

Close-up of the automatic drip, showing water being discharged

This picture shows the low-pressure type of drip, which is used on wells having rock pressures up to 500 pounds. This type is made of a piece of 10″ casing, 8 ft. long with frame made of 2″ pipe. The high-pressure type is 10 ft. long and made of 8″, 32-pound pipe. Its frame is constructed of 2½″ pipe.

These drips are made up in the Tulsa shops of the Oklahoma Natural Gas Corp., and cost approximately $75 each. Pipe frame and supports are welded and the main barrel of the drip is made of casing with ends welded. A 1″ high-pressure regulator valve is used. This is a quick-opening valve. The stem is fastened to a support across the end of the drip frame, and may be adjusted by means of set screws to open any distance. The valve is fastened to the discharge end of the drip. Thus, when the load of water inside the barrel causes it to drop, the valve drops with it and is wide open when at its lowest position.

From *National Petroleum News*

The drip is adjusted according to amount of water the well makes, with the idea of keeping the water moving out as rapidly as it accumulates. In some cases, it will be flowing almost constantly, while in others, where smaller quantity of water is to be handled, it will dump at much greater intervals. Adjustment is made so the barrel will rise and the valve close before all water in the barrel has been ejected, in order to obviate the possibility of drawing in gas from the separator.

Southwest Div. of Natural Gas Department to Meet

THE program for the meeting of the Southwest Division of the Natural Gas Department of the American Gas Association which is to be held in Houston, October 31 and November 1, is rapidly taking such shape as to promise the most interesting meeting of the Division.

The tentative program has been announced as follows:

"Standardizing the Open Flow from Natural Gas Wells," by T. W. Johnson, assistant natural gas engineer, Bureau of Mines, Bartlesville, Okla.

"The Value of Property Appearance and Maintenance," by R. J. Daugherty, The Empire Companies, Bartlesville, Okla.

"Natural Gas Problems of the Southwest," by Frank Kirk, Houston Pipe Line Co., Houston, Texas.

"Development of Conservation of Natural Gas," by Wm. F. Chisholm, director of Mineral Division, Louisiana Conservation Commission.

"Institutional Advertising," by Keith Clevenger, The Empire Companies, Bartlesville, Okla.

"House Heating with Gas," speaker to be announced.

The questions for discussion include: What are the advantages and disadvantages of curb box meters? What are the advantages and disadvantages of the several methods of protecting gas service lines? What results have been obtained in protecting steel pipe lines from soil corrosion? What is being done to further the sale of gas engine gas? What would be the advantages of making industrial installations on an installment payment plan? What is the best way to control high-pressure gas wells? Can an upper gas sand be mudded off and later reclaimed as a producing gas sand? What are the advantages of straightening valves in orifice meter settings?

Arrangements are being made for adequate entertainment at Houston and preparations are under way to care for a convention of at least three hundred gas men. The convention last fall in Dallas was attended by 210 gas company representatives.

There will be no exhibit at the Houston convention, as the Houston event will follow the A. G. A. Chicago convention at which a large exhibit of appliances and apparatus will be made.

Coal Drilling Regulations

A SPECIAL committee of the Natural Gas Department of the A. G. A. on Tentative Regulations for Drilling Through Coal has published the proposed regulations, drafted by the chairman after consultation with committees members, conferences, etc., in the September issue of *Natural Gas*.

The recommendations are put forth with a request for final, definite and constructive criticism to be submitted in writing to W. E. Fohn, House Building, Pittsburgh, Pa. The proposed regulations will be given final form in the light of the criticism received and be transmitted to the Board of Directors, of the A.I.M.E.

Gas Measurement Report Now Available for Members

THE preliminary report of the Gas Measurement Committee of the late Natural Gas Ass'n has been printed and is now available for members of the Natural Gas Department of the American Gas Association.

Any individual member of the Natural Gas Department may secure a copy by writing to A. G. A. Headquarters, 420 Lexington Ave., New York, N. Y. Additional copies, and copies for non-members, will be supplied at cost.

ALL member companies of the American Gas Association are again reminded that the use of the A. G. A. seal on their stationery and publications is strongly recommended. Electrotypes of the seal may be had by writing to Headquarters, 420 Lexington Ave., New York, N. Y.

Associations Affiliated with A. G. A.

K. R. Boyes, Secretary

Canadian Gas Association
Pres.—P. V. Byrnes, United Gas & Fuel Co., Hamilton, Ont.
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto.
Conv., Hamilton, Ont., 1928.

Empire State Gas and Electric Association
Pres.—H. M. Brundage, Consolidated Gas Co. of New York, New York, N. Y.
Chairman Gas Section—O. H. Smith, Consolidated Gas Co. of New York, New York, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
Conv., Lake Placid Club, Lake Placid, N. Y., Oct. 6 & 7, 1927.

Illinois Gas Association
Pres.—P. D. Warren, The Peoples Gas Light & Coke Co., Chicago, Ill.
Sec.-Tr.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
Conv., 1928.

Indiana Gas Association
Pres.—I. C. Shepard, Southern Indiana Gas & Elec. Co., Evansville, Ind.
Sec.-Tr.—F. B. Tracy, Central Indiana Gas Co., Muncie, Ind.
Conv., 1928.

Michigan Gas Association
Pres.—F. W. Steere, Semet-Solvay Co., New York, N. Y.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Conv., 1928.

Mid West Gas Association
Pres.—C. A. Nash, United Light & Railway Co., Davenport, Iowa.
Sec.-Tr.—A. W. Schmidt, Des Moines Gas Co., Des Moines, Iowa.
Conv., 1928.

Missouri Association of Public Utilities
Pres.—W. H. Henby, St. Louis County Water Co., St. Louis, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Conv., 1928.

New England Gas Association
Pres.—William Gould, Gas and Electric Improvement Co., Boston, Mass.
Secretary—E. A. Taylor, 100 Weybosset St., Providence, R. I.
Chairman Operating Div.—A. H. Scott, New Britain Gas Light Co., New Britain, Conn.
Secretary Operating Div.—F. E. Drake, Lynn Gas & Electric Co., Lynn, Mass.
Pres. Sales Div.—M. B. Webber, Marlboro-Hudson Gas Co., Boston, Mass.
Sec.-Tr.—Sales Div.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.
Pres. Industrial Div.—E. W. Berchtold, Boston Con. Gas Co., Boston, Mass.
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Chairman Acctg. Div.—W. A. Doering, Boston Con. Gas Co., Boston, Mass.
Sec.-Treas. Acctg. Div.—Otto Price, Boston Con. Gas Co., Boston, Mass.
Conv., 1928.

New Jersey Gas Association
Pres.—J. L. Conover, Public Service Electric & Gas Co., Newark, N. J.
Sec.-Tr.—Louis Stoecker, Public Service Electric & Gas Co., Newark, N. J.
Conv., 1928.

Oklahoma Utilities Association
Pres.—E. R. Ernsberger, Southwestern Light & Power Co., Oklahoma City, Okla.
Mgr.—E. F. McKay, Oklahoma City, Okla.
Conv., second week March, 1928.

Pacific Coast Gas Association
Pres.—L. M. Klauber, San Diego Consolidated Gas & Electric Co., San Diego, Calif.
Exec. Sec.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.
Conv., 1928.

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Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., 1928.

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Conv., 1928.

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Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
Conv., 1928.

Wisconsin Utilities Association
Pres.—John St. John, Madison Gas & Electric Co., Madison, Wis.
Exec.-Sec.—J. N. Cadby, 432 Broadway, Milwaukee, Wis.
Conv., 1928.

Geographic Divisions

Eastern States Gas Conference
Pres.—H. H. Newman, Public Service Electric & Gas Co., Trenton, N. J.
Sec.-Tr.—J. C. Smith, Consumers Gas Co., Reading, Pa.
Conv., 1928.

Ninth Annual Convention of the American Gas Association
Chicago, Ill. Stevens Hotel Oct. 10-14, 1927

Employment Bureau

(Address All Communications to Key Number)

SERVICES REQUIRED

WANTED by large gas company in middle west, salesman for industrial gas appliances. Address A. G. A.
Key No. 073.

WANTED—Sales Representatives for industrial gas appliances and burners by manufacturer of trade name line. Commission. Have openings in Chicago, St. Louis and a few other industrial centres. Address A. G. A.
Key No. 0106.

SALESMEN—Well-known manufacturer of water heaters is in need of local representatives in several cities. The type of man wanted should be about 30 to 35 years of age, well educated, healthy, good business experience including direction of other employees. Reply, giving full qualifications, present connection and salary. Treated in confidence. Inclose photo if available. Address A. G. A.
Key No. 0107.

AGENTS WANTED to sell some of the latest type quick-acting thermostats to Gas Companies and Plumbers; also to act as manufacturers' agents. State commission required, present occupation, personal and bank references. Address A. G. A.
Key No. 0108.

MANAGER—Small gas company in Eastern States rapidly expanding its business—water gas production—high pressure distribution only. Type of man wanted is 30 to 40 years old, good education and experience in the business including direction of other employees. Reply, giving full qualifications, present employment, and compensation. Send photograph if available. All applications will be treated in full confidence if desired.
Key No. 0109.

SERVICES OFFERED

AGGRESSIVE COMMERCIAL MANAGER—34 years of age, available October or November. Thoroughly familiar, Industrial, Commercial and Domestic Sales Promotion. Address A. G. A.
Key No. 220.

ACCOUNTANT and Office Manager with wide experience in management, purchasing and all office details. Address A. G. A.
Key No. 223.

POSITION wanted as Superintendent of small gas company or as General Foreman of large plant. Approximately seventeen years' experience in all branches of manufacture and distribution, high and low pressure systems. Address A. G. A.
Key No. 224.

POSITION as manager of small gas or combination gas and electric property or as commercial manager of a larger property by a man thoroughly reliable with wide experience and a record for producing results. Address A. G. A.
Key No. 226.

CHEMICAL ENGINEER—with 7 years' experience in the testing and developing of different classes of gas appliances also familiar with the testing and utilization of natural gas and manufactured gas—A-1 references. Address A. G. A.
Key No. 227.

YOUNG ENGINEER—22 years of age, unmarried, with no objection to any part of the country wishes a position as Industrial Engineer in the Gas Industry. Has a knowledge of applications of heat and how to compute requirements. Employed at present as Assistant Industrial Engineer. Address A. G. A.
Key No. 228.

A GRADUATE of California University desires a position as Private Secretary and Stenographer, has considerable experience in Utility work and can give satisfactory references. Address A. G. A.
Key No. 229.

COMMERCIAL OR SALES DEPARTMENT MANAGER—15 years' experience in new business department and appliance sales activities and management, with gas and electric companies. Three years purchasing department manager. Technical University graduate. Desires connection with large company as commercial or merchandising manager, or to supervise commercial activities for a group of properties. Service available on short notice. References include present employer. Address A. G. A.
Key No. 230.

POSITION—Sales Department with manufacturer of gas appliances or gas meter company. Experience includes executive training. Would prefer position in the East. References. Address A. G. A.
Key No. 231.

EXECUTIVE—Unusually broad training and experience operating and managing utilities—gas, electric, water, ice; directing new business activities, commercial and public relations; cost analysis; rate designing; investigation, purchase and sale of properties, etc. Location immaterial. Present address, New York. Address A. G. A.
Key No. 232.

WANTED—Position by young woman, B.S. in Chemistry as technologist, in library or in home service department. Nine Years' experience. Address A. G. A.
Key No. 235.

COMMERCIAL OR SALES MANAGER with fine record of achievement, available for northern location near future. Responsible for one of the outstanding gas properties of 1926. Capable organization and operation of complete commercial department including sales, advertising and publicity and public relations. Vitally interested in heating and refrigeration load. Contract on salary and commission basis. Southern climate unsuitable reason for change. Address A. G. A.
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ACCOUNTANT, AUDITOR, COMPTROLLER 20 years' experience with large Utility Organizations, in all phases of modern accounting, audits, financial management and budget systems. Christian, 42, married. Available immediately. Salary reasonable. Address A. G. A.
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W. W. FREEMAN	Cincinnati, Ohio
P. H. GADSDEN	Philadelphia, Pa.
R. W. GALLAGHER	Cleveland, Ohio
ARTHUR HEWITT	Toronto, Can.
ALFRED HURLBURT	Pittsburgh, Pa.
SAMUEL INSULL, JR.	Chicago, Ill.
J. B. KLUMPP	Philadelphia, Pa.
R. M. LEACH	Taunton, Mass.
P. A. LEMKE	Kalamazoo, Mich.
H. C. MORRIS	Dallas, Texas
B. J. MULLANEY	Chicago, Ill.
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Vice-Chairman	EDWARD PORTER	Philadelphia, Pa.
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Chairman	HARLOW C. CLARK	Newark, N. J.
Vice-Chairman	E. F. GARDINER	Chicago, Ill.
Secretary	C. W. PERSON	Ass'n Headqtrs.
COMMERCIAL—Chairman	J. J. BURNS	St. Louis, Mo.
Vice-Chairman	G. M. KARSHNER	New York, N. Y.
Secretary	J. W. WEST, JR.	Ass'n Headqtrs.
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Vice-Chairman	F. C. MACKEY	Chicago, Ill.
Secretary	C. W. BERGHORN	Ass'n Headqtrs.
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Secretary	C. W. BERGHORN	Ass'n Headqtrs.
TECHNICAL—Chairman	W. C. BECKJORD	New York, N. Y.
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